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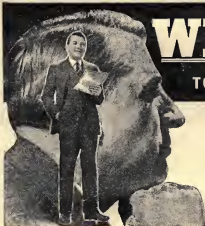
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AROUND

THE UNIVERSE

A COMPLETE NOVEL
by RAY CUMMINGS

(Author of "Men on the Meteor," "Tornado the Conqueror," etc.)

CHAPTER I

Tubby had no idea when he made his wish about "knowing the cosmos first hand" that it was going to come true. But come true it did, and he found himself off on a tour of existence with the odd little men who called himself Sir Isaac Newton Yerze Wells. And Tubby never suspected that their pleasant little jaunt would turn into a mad race against time, to save Earth from a terrible threat.

Here it is—the best-liked of the famous "Tubby" stories—a full-length novel, reprinted by popular request.

"THAT ain't so," Tubby spoke up suddenly from the seclusion of his seat across the room. He glanced at the three men who sat around the little table under the circle of light, their poker game temporarily suspended, the cards and chips pushed to one side. "That ain't no how. Don't you tell me it is!"

"He ain't tellin' you," responded one of the men caustically.

"I ain't sayin' what I think," the first man defended. "I'm tellin' you what he said. The Stars goes right on past the Sun—right to the edge of Space—only there ain't no edge of Space. *That's* what he said."

"You're right, Jake," agreed the second man. "That's what he said."

Tubby glared belligerently, and brought his pudgy fist down upon the flimsy arm of the camp chair into which he was wedged. "That ain't so. There must be an edge to Space," he snorted. "How can Space go on forever? That ain't got no sense to it."

The first man continued patiently:

"He said if you could imagine the edge

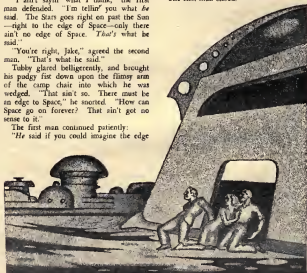
of Space with nothin' on beyond, that would just be more Space, wouldn't it?"

This question addressed directly to Tubby, confused him momentarily. The place where Space stopped with nothing on beyond! Sure that would just be more Space. Then, quite suddenly, the flaw in the argument struck him.

"You got the wrong idea," he declared condescendingly. "I ain't never said there was nothin' on beyond the edge of Space."

"He's right, Jake," the second man put in. "He ain't never said that."

The first man stared.



"You're assumin' somethin' you ain't got no right to assume," Tubby went on mercilessly.

The first man collected his scattered wits. "Well, what *did* you say?" he demanded.

"I didn't say nothin'," Tubby responded. Then to change the subject he added abruptly:

"Who was he—said all this?"

"A Professor—an—an Astronomer," replied the first man. "Us heard him give a lecture last week."

"Did he say the moon had people on it?" Tubby persisted.

The first man, confused by the sudden introduction of this new topic, answered sullenly:

"No, he didn't say nothing about no people in the moon."

"What are you gettin' at, Tubby?" the third man put in. "We're talkin' about Space, not no men in the moon."

Tubby smiled genially. "I'm talkin' about the moon. I read a book by a guy named Wells. Now he says—"

"He ain't no Astronomer," the first man objected. "What's he know about it?"

The third man continued the attack.

"Stick to what you were sayin', Tubby. You said there would be somethin' at the edge of Space—not just more Space."

"I didn't say nothin' about it," Tubby repeated. "But I *will* say... There *is* no edge to Space because when you get there you wouldn't find more Space, you'd find—"

"What?" demanded the first man aggressively when Tubby hesitated.

"Why—why, more Land—that's what you'd find." Tubby glared through the blue haze of the tobacco smoke that hung like a pall about the unventilated room.

"More Land," he repeated triumphantly. "Ain't that argument enough? Don't that show Space can't go on forever?"

The third man was gathering up the cards and chips. "Let's go ahead with the game," he suggested. "This here argument ain't got no sense. You shut up, Tubby—you ain't in this."

"Right," said Tubby, with the magnanimous air of a victor. He shifted his feet more comfortably on the second camp chair and leaned back contentedly. "You don't want *me* talkin'. I can shoot your argument full o' holes in no time."

The first man insisted on proceeding with his astronomical narration, while Tubby

listened idly. It was then—as he sat there vaguely sorting out in his mind the miscellaneous statements regarding stars, planets and comets which his friend was making—that his great gift was revealed to him. The revelation came unobtrusively—so unobtrusively in fact, that at first Tubby did not grasp its real significance.

"I *wish* they'd quit that talkin' an' go on with the game," he murmured to himself with annoyance.

It seemed quite logical that at that instant Jake should decide he wanted to resume the poker game. At all events, in another moment the chips were clicking on the board table—science was forgotten for the more absorbing intricacies of poker.

Tubby, even then not realizing his marvelous gift, was left alone with his thoughts. Enormously large numbers whirled in his head—strange words—orbis, suos, planets, comets, stars... Stars! He seized upon that, as one word at least, that was really familiar. It was a beautiful sight out, he remembered; and as he gazed upward to the dim, smoky rafters of the room he was sorry he was not outdoors.

I WISH I could see them stars now," he murmured.

And quite naturally, there were the stars, brilliant and glittering, spread out above him like millions of diamonds on a huge blue-velvet cloth. The moon hung over a clump of trees, above Bill Hawkins' apple orchard.

There are some very surprising things that occur so naturally they do not cause surprise. The revelation of Tubby's marvelous gift was one of them. He was not surprised to see the stars, only pleased.

"I *wish* I knew somethin' really true about them stars," he muttered thoughtfully. And then with sudden vehemence:

"I *wish* I knew all about them stars. I *wish* I knew all about Astronomy—I *wish* I could see it all for myself."

He felt fingers plucking at his sleeve, and turning, faced the dim figure of a man who was standing by his side.

"I came," said the man softly, "because you seat for me." He stepped forward a little, out of the shadow to a place where the moonlight fell on his face. Tubby thought he had never seen so sad a face before. It was long and very thin. It needed a shave, Tubby thought; and its eyes were unnaturally bright. A thin wisp

of scraggly brown-white hair was above the face; and below, just above the collar of a soft white shirt, protruded a perfectly enormous Adam's apple.

Tubby's gaze swept the man's thin, but somehow muscular-looking figure—bare-headed, costless, the white negligee shirt with loose, soft collar and a flowing black bow tie; and very baggy tweed trousers that flapped on bony legs.

"I'm here because you wanted me," the man repeated. His voice was deep and throaty, and inexpressively sad.

Tubby felt immediately sympathetic. "I'm sorry you're so sorry about somethin'," he said consolingly. "I didn't mean to send for you. I—"

The man smiled gently, pathetically. Tubby stared at his Adam's apple, fascinated, for it was bobbing up and down as though its owner were swallowing rapidly.

"Oh, I don't mind," the man said patiently. "You couldn't help it. You wished you knew all there was to know about Astronomy——" He paused, his voice trailing away.

"Right," said Tubby encouragingly. He felt somehow tremendously sad, but determined not to show it. "That's what I wished. And so you——"

"So, of course, because you have the power to make all your wishes come true, I had to hurry here to tell you everything you—wanted to know."

His voice broke; and Tubby saw, even in the dim moonlight, that his eyes were filling with tears.

"I'll tell you *all* about Astronomy," the man went on in his dull monotone. "But you won't believe me."

His utterly hopeless depression was contagious. Tubby swallowed the lump in his throat. He put out his hand and touched the man's elbow—a round, bony knob underneath the thin sleeve of his shirt.

"Yes, I will believe you," he said kindly. "I wouldn't never think you was a liar."

The man brightened perceptibly.

"Let's get acquainted," Tubby added. "Then you can tell me why you're so sad."

"**M**Y NAME is Isaac Wells-Verne," said the man. "Sir Isaac Swift DeFoe Wells-Verne, but my friends call me Professor."

"Mine's Tubby—pleased to meet you, professor."

They shook hands.

"What are you professor of?" Tubby asked, after an awkward silence.

Sir Isaac's expression, which had cheered somewhat at the introduction, clouded over again.

"Professor of Knowledge," he said sadly. "It is my business to know everything and to tell people about it—in writing."

"Oh," said Tubby.

"I do tell them——" Sir Isaac sighed heavily, and a tear slipped from one of his eyes and rolled down his lined face—lines of care, and of emaciation rather than age, for the man was not really old. "I *do* tell them—but nobody ever believes me. Life and people on the moon, for instance——" He sighed again, and shrugged resignedly.

"I've told them all about that and they don't take me seriously. They think because I've never been there, that I'm making it up. Sometimes they won't even buy what I've written. They——"

Tubby's fat little arm went around Sir Isaac's thin waist.

"Don't you care, professor. I'll believe you. I won't never think you're makin' nothin' up." A sudden thought occurred to him. "You're hungry, ain't you, professor? You look hungry. Did you eat today?"

"I—no, I didn't," Sir Isaac admitted reluctantly. "But I don't care about eating. I want people to appreciate my genius. I——"

"You *must* eat," declared Tubby. He expanded his stomach. "Look at *me*—I ain't never missed a meal in ten years."

The further thought struck him that possibly Sir Isaac had no money with which to buy food. McGuirk's lunch-wagon was less than a mile away—Tubby himself would pay for the meal. And then, as a climax to this mental activity, Tubby remembered his own newly discovered power.

"I wish we had a *also-lately* perfect dinner served right now, here on the ground," he declaimed abruptly.

And, even before Tubby himself realized his wish had come true, Sir Isaac was squatting cross-legged on the ground eating the food with avidity. Tubby had eaten only an hour before, and with difficulty he crammed down barely a third of the lavish meal. But Sir Isaac was equal to his task; and, for ten minutes, Tubby, completely satiated, sat in silence watching his new friend empty the huge silver platters. Tubby noticed now that from the pockets of Sir Isaac's shirt the stubs of three or four

grubby lead pencils and a fountain pen protruded; and that the third finger of his right hand had a corn on it, near the end joint; and all his fingers were ink-stained. Also from each of his hip pockets, as he sat hunched forward on the ground, Tubby could see a huge bundle of folded manuscript, sticking out.

When everything edible was completely eaten, Sir Isaac sighed contentedly.

"I wish we each had a good cigar," said Tubby promptly; and striking a match deftly with his thumb nail, he courteously lighted the huge black perfecto which Sir Isaac had in his mouth.

With his own cigar lighted, Tubby leaned back luxuriously and smiled at his companion.

"This ain't so bad," he declared cheerfully. "Now, professor, tell me all about *everything*. You can begin with—" He deliberated. "—begin with the edge of Space. These here guys—"

Tubby broke off, for a stupendous idea had just occurred to him. Sir Isaac knew all about everything—but he had not actually seen it. The Moon, for instance. He had never been there—that's why people wouldn't believe what he wrote about it. Now with his (Tubby's) ability to wish for anything, why not go there—go everywhere—and see *everything*? It ought to be possible. . . .

"Listen, professor," he said, excitedly. "You don't need to tell me *nothing*. Let's go see things for ourselves." He explained his idea vehemently.

Sir Isaac looked almost dazed for an instant. "If I only could," he said musingly, his deep voice filled with awe. "I know just what we would find—on the Moon, Venus, Mercury, Mars—everywhere, everything—I know it all. If only I *could* verify it—could see it all for myself—"

Tubby was standing up impatiently. "Come on, professor. Let's go."

Sir Isaac climbed to his feet mechanically, a look of exaltation on his face.

"If I only could—" he murmured; but Tubby interrupted him sharply.

"Come on. Don't be no goop."

"But where? How?" asked Sir Isaac almost stupidly, for the anticipatory joy in his heart had dulled momentarily even his gigantic intellect.

"I *wish* we could go anywhere in the Universe. I *wish* we were all ready to go

now. I wish we had a—a *absolutely* perfect ship to go in," Tubby intoned rapidly.

THEY BOTH saw it the same instant, shining in the moonlight in a field not fifty feet away—a pale, grey-white, square metallic object, as large as the little building that housed O'Connor's Grocery.

"There it is," said Tubby. "What is it? Come on—let's go see."

Sir Isaac's eyes shone as he looked at it.

"My Inter-planetary vehicle," he murmured, pride and awe mingling in his tone. Without another word he gripped Tubby by the hand, jerking him forward at a run.

Tubby's breath was almost gone when they arrived. He stood leaning against the side of the vehicle, panting. The thing was indeed as big as a very small cottage. It was made of metallic substance—similar to aluminum only different, Sir Isaac said. In shape it was like a huge cube with a little dome set on top. It had several tiny windows of heavy plate glass set in each side, with a small metal door in front, which door now stood invitingly open.

Tubby, his breath recovered, walked around the vehicle, inspecting it curiously; while Sir Isaac stood regarding it as a proud mother might regard her precocious offspring.

After a complete circuit outside, Tubby peered through the doorway into a dim interior.

"Come on in, professor. It's all ready, waitin' for us."

They went inside together; and Sir Isaac, as though he had lived in the place all his life, immediately switched on a light.

Inside, the vehicle was divided into several tiny rooms on two floors—just like a toy cottage, Tubby thought—and seemed fully furnished and equipped ready for occupancy. There was a store-room of food—a little kitchen, like the kitchen of a Pullman dining car—a main room, filled with a mass of scientific instruments—and two very small beds upstairs. Tubby sat down on one of the beds tentatively. Its mattress was soft; its springs yielding but strong, and its coverings luxurious.

Tubby sighed with relief. "I ain't no kicker, professor, but I do like to sleep comfortable."

They went back into the instrument room, where Sir Isaac quietly inspected a little keyboard like that of a typewriter.

"What's that?" Tubby asked. "Do you

know how to run this thing, professor?"

Sir Isaac straightened. His manner had completely changed. He was now forceful, commanding, dominant. Tubby was impressed by his look, even before he spoke.

"This is my Inter-planetary vehicle," he said sternly. "I invented it—I designed it—I have operated it, in my mind, many times. It is one of the most important of my contributions to science. I know *all* about it, of course."

"Oh," said Tubby. "That's fine. Then we're all ready to start, ain't we?"

Sir Isaac bowed gravely.

Tubby at the moment was standing beside one of the little windows. The moon was still over Bill Hawkins' apple orchard; and at the sight two ideas came to Tubby simultaneously.

"Just a minute, professor," Sir Isaac was about to close the heavy front door. "I ain't goin' 'til I wish them apples of Bill Hawkins' is lyin' rotten on the ground. He's a mean guy, he is—wouldn't let me pick none *ever*."

Tubby's eyes were sparkling with vindictive joy at the thought of this simple and efficacious revenge. "Come on, professor. Let's go see how all them apples look when they're rotten."

Sir Isaac's glance was scornful.

"That is childish," he said shortly; and banged the door shut.

Tubby, subdued but still wishing fervently and audibly that this catastrophe would befall the luckless Bill Hawkins, stood by the window while Sir Isaac went to the keyboard and unhesitatingly pressed one of its keys.

There was a faint but perceptible trembling of the room. Tubby's feet pressed hard against the floor and his stomach seemed failing. It was like an elevator that suddenly takes you up much too fast.

Sir Isaac switched off the light, plunging the room in darkness. Through the window Tubby saw a moonlight landscape silently dropping away beneath them.

He turned from the window after an instant, slightly sick and very frightened; but at once he felt better. The purring had ceased. The room, in fact, was apparently motionless and quite silent. Tubby felt no further desire to look out of the window; he sat down in a chair, mopping the perspiration from his forehead with his shirt-sleeve.

Sir Isaac, his tall thin figure barely vis-

ible in the moonlit room, was still standing rigid by the keyboard, his fingers pressed delicately but firmly on its keys as a surgeon's assistant holds the patient's pulse during an operation. Tubby stared at him a moment, then ventured:

"Where—where we goin', professor?"

Sir Isaac moved, and as his fingers left the keyboard to itself, Tubby's heart leaped. Would the thing fall if you didn't watch it? Evidently not, for Sir Isaac went over to the window quite calmly.

"We will not bother with the moon just now," he said thoughtfully, more to himself than to Tubby. "No, we can stop there coming home. . . . I think we should go toward the sun first, and then, after Venus and Mercury, skip back to Mars and so on out. . . . Yes, that will be best."

He turned away from the window toward Tubby.

"Our first stop will be Venus," he added authoritatively.

"Venus!" exclaimed Tubby. "That's fine. Then—then where do we go?"

"After that," said Sir Isaac slowly and impressively—"after that we will inspect the entire Universe!"

CHAPTER II

"**C**OME over here, Tubby," said Sir Isaac a few moments later. He had gone back to the keyboard, pressed another of its keys after making a rapid mathematical calculation with one of his pencil stubs on a little paper tablet, and now was standing quietly by the window again. "Come here, Tubby, and look out."

Tubby shook his head emphatically. "You look out. I ain't interested."

He was considerably more frightened now than a few moments before, for a very disconcerting thing had happened. He had secretly been reassured as they started, by the knowledge that in the event of any dire disaster, he could easily wish himself safely back at home. It had been getting extremely warm in the room, and he had wished it would be cooler. But, so far as he could tell, it was getting warmer, rather than cooler. Alarmed, he had wished vehemently that they were back on Earth looking at Bill Hawkins' apples. But nothing had happened. Sir Isaac was then making his mathematical computations at the keyboard; finally he had pressed another key carefully, and quite in defiance of Tub-

by's frantic mental wishes, walked quietly to the window.

Tubby considered the situation, and now decided to consult his companion about it.

Sir Isaac laughed softly.

"That was merely your *Earthly* power," he said condescendingly. "I suppose I am glad you possessed it, since you were enabled to bring into material being this inter-planetary vehicle of mine." He raised his hand deprecatingly. "Of course, I could easily have constructed it myself. In fact, I was intending to—as soon as I had the necessary money."

Tubby was aggrieved at this ingratitude. "An' then I—I ain't able to wish for nothin' no more?"

"No," said Sir Isaac. "Naturally not—since you have left the Earth. You are now in the realms of Science—subject only to rational scientific laws. That magical wishing ability you had was childish. I could never be concerned in an affair like that." He seemed to shudder at the thought, and added emphatically:

"I am a man of Science. Everything I have ever conceived has been strictly scientific. I am ashamed of you—and of course, now that you are in my realm, naturally all such foolishness has been left behind."

Tubby pondered this, sitting hunched up in his chair and sweltering in the heat. He was somewhat sullen; but presently, when Sir Isaac patted him kindly on the shoulder and assured him they were in no great danger, he cheered up a little.

"It's too hot in here, professor," he declared. "Can't we open the window an' get a little air in?"

Sir Isaac smiled at the idea. "There is no air outside," he said quietly. "We have already traversed the few hundred miles of atmospheric envelope and passed beyond even the most rarefied strata of the Earth's atmosphere. We are now in space."

"Oh," said Tubby. "Well, just as you say. But it's awful hot."

Sir Isaac was bending down to squint upward through the window, which from where Tubby was sitting was merely a black rectangle.

"It will cool off presently," he said casually. "There's the thermometer by you. See what it says."

The room was now dimly lighted by one small electric bulb—which was lucky, Tubby thought, for there was not even moonlight coming in through the window. He

found the thermometer. It stood a little over a hundred degrees.

An alarming idea came to Tubby; it would be terrible to smother and be so hot all at the same time. "Say, professor, how are we goin' to breathe when we use up all the air we got in here?"

SIR ISAAC reluctantly turned from his inspection of whatever it was showed through the window, and pointed to one of the instruments on a table over against the wall.

"In breathing," he explained, "we alter the air only in so far as we use up its oxygen and add to it an excess of carbonic acid gas. Now over there on that table is Reiset and Regnault's apparatus—which I still consider the best of its kind. It produces oxygen from chlorate of potassium and releases it into the air as fast as we use it."

Sir Isaac smiled to himself with satisfaction. "I have thought of and provided for every contingency. The carbonic acid gas that we exhale is absorbed." He indicated several containers under the table. "Those hold caustic potash, which absorbs the carbonic acid gas. . . . I have explained all this in my books, but I suppose you have not read them."

"Yes—no," said Tubby. "Not all of them, I guess." He felt a little humiliated. "I ain't so very scientific, professor. You'll have to tell me things as we go along."

"I will," agreed Sir Isaac magnanimously. He pulled out his handkerchief and mopped his forehead. "It *is* hot. That's because of our friction in going through the Earth's atmosphere so fast. We're far beyond the atmosphere now—exposed to the intense cold of inter-planetary space. We'll be freezing in a little while—you need not worry about the heat."

Tubby glanced apprehensively toward his discarded coat, and tried to recall how many blankets there were on the bed upstairs.

Sir Isaac added:

"Come over here and look out the window. Don't be afraid."

Through the window Tubby saw the stars, brighter, more brilliant than they had ever been before. Freed now from the distortion of the Earth's atmosphere, they glittered like huge, sparkling diamonds, surrounded, not by the familiar blue of the sky as seen from the Earth, but by a profound inky darkness.

It was a marvelous—indeed a stupendous

—sight. The whole extent of the heavens swarmed with stars and constellations of pristine purity. Here and there hung huge, spiral nebulous masses, fleecy white, and glittering with tiny blazing points of white fire. Some of the larger stars were blue-white, others silver, still others a dull glowing red; and across the firmament stretched that immense ring formed by an impalpable dust of stars, the "Milky Way," in the midst of which our own sun ranks only as a star of the fourth magnitude.

"Ain't that pretty?" Tubby marveled. His fear had entirely gone. "Where's the moon?"

"The moon is on the other side of us," answered Sir Isaac. "It is shining into the room next to this." The instrument room, in which they were, only extended half the width of the vehicle. "Looking out this window we cannot see the moonlight, for there is no atmosphere to diffuse its rays ... Stoop down and look upwards, Tubby."

Tubby squinted up through the window from beneath and saw a very large, thin silver crescent—an enormous arch extending nearly a third of the way across the sky. It glowed with a blue, almost phosphorescent light, and its outlines were blurred and wavy. Some parts of it were brighter than others, and there were many dark, almost black spots.

"**W**HAT'S that?" he asked, amazed. "I ain't never seen nothin' like that in the sky before. Is that where we're goin' to? We must be almost there. What is it? Venus?"

"That's the Earth," said Sir Isaac calmly. "We have turned over, you see, because our base is heavier. We are falling diagonally away from the Earth, partly toward the moon and partly toward the sun. I shall head directly for the sun later tonight."

It was very hard for Tubby to realize that they were going the other way, having turned almost completely over; but finally he managed it. He was beginning to feel comparatively little surprise at anything any more.

"Why don't we see all of the Earth?" he demanded. "Why is it so thin—like a new moon?"

"Because the Earth is 'new'," Sir Isaac explained. "From the position we now occupy that is all that is illuminated by the sun's rays, though if you look closely you can distinguish the dim outline of the un-

illuminated portion of the sphere. You see the Earth is in its first phase. It——" He seemed contemplating the use of some profound scientific language; then, meeting Tubby's puzzled glance, he shrugged and gave it up.

"It is just like a new moon," he added. "Only it's a new Earth."

They inspected the moon itself a few moments later, through the window of the adjoining room. It hung apparently motionless just below the level of the window. All around it in the blackness, the stars shone as brightly as though it were not there—which, as Sir Isaac reminded, was merely because there was no intervening atmosphere to diffuse its rays and thus obscure the stars.

The moon was somewhat larger than when seen from the Earth, and considerably brighter. Its rays bathed the store-room with a brilliant, blue-white light. Tubby was opening a box of crackers as he stood regarding it.

"Ain't that romantic," he murmured a moment later, with his mouth full of biscuit. "That's abso-lute-ly pretty moonlight. Come on, professor—eat somethin'. This travelin' so fast makes me hungry."

They made a very comfortable little midnight supper of sardines—which Tubby found in a well-filled ice box—and the crackers. Sir Isaac's appetite revived with eating, and he devoured such a prodigious quantity of the food that Tubby became alarmed over an ultimate shortage.

"It's quite all right, you know," Sir Isaac assured him. "We are supplied for over a year. I've never started on a journey like this—even a mental journey—without an entirely adequate food supply. Besides, we can replenish along the way. You will find the Mercurian cuisine particularly good."

It had been growing steadily colder; and Tubby, discovering that the tiny kitchen which adjoined the store-room held a very decent little gas stove, made them each a steaming hot cup of coffee.

"How cold is it liable to get, professor?" he asked, as they sat at an immaculately clean board table and drank the coffee. "Ain't this house got any heatin' apparatus? A nice little furnace now——"

"It can be heated," Sir Isaac answered. "But we shall not need it. It will be warm enough presently."

Certainly the weather in space was exceedingly changeable; but that was to be

expected when one was traveling from place to place with such rapidity.

"But how cold would it get if we stayed where we are?" Tubby persisted. He was beginning to be theoretical also, which, as Sir Isaac had remarked, is the first prerequisite of a scientific mind.

"I think I once estimated the temperature of space to be about 250 degrees Fahrenheit below zero," remarked Sir Isaac. "Pass me the cream, will you? And the coffee pot? You make pretty good coffee."

"Thanks," said Tubby. "I ain't so terrible good at cookin'——" He paused deprecating, his amazement at Sir Isaac's estimation at how cold it could get forgotten in the compliment to his culinary skill.

"Minus two hundred and fifty degrees," Sir Isaac repeated thoughtfully. "I wish I could verify it now. But we won't suffer from the cold. Soon we shall be——"

As though in answer to his unspoken words, sunlight burst in through a window in the floor directly under Tubby's feet. He had not known this window was there, and leaped aside in terror. The vehicle at that moment had emerged from the conical shadow cast by the Earth, and the diagonal rays of the sun struck its lower surface. Bathed in its golden fire, which mingled with the moonlight from the side window, the room in a moment became warm and pleasant.

"This is nice," said Tubby, with rapidly recovered equanimity. He discarded his coat again, and pushed the hot coffee from him. "We sure do have speedy changes of weather, don't we, professor?"

SIR ISAAC had donned a pair of smoked spectacles and was on his knees peering down through the window. He called Tubby and offered him a second pair of the glasses.

Tubby sat down on the floor. The sun, through the smoked glass, appeared a glowing red ball, with enormous tongues of flame rising from it. The globe itself was no larger than usual. They were closer to it, Sir Isaac remarked, but its distance still was so comparatively great that its visual increase of diameter was undiscernible. Also, on Earth, the atmospheric refraction enlarged it.

The sun was not directly beneath them, but off considerably to one side—on the side away from the moon. And although

Sir Isaac had already explained the phenomenon in the case of the moon, Tubby was greatly amazed to see the stars shining quite impermutably all around the sun.

"That's the first time I ever seen stars shinin' in the daytime," he murmured.

Sir Isaac climbed to his feet. "I'll be back in a moment. I want to change our course and put on more speed."

He left Tubby sitting there and went into the instrument room, where, after a few more algebraic calculations, and careful reference to a huge book that lay at hand, he depressed another of the keys slightly—and, after an instant's hesitation, two others on another rack of the keyboard.

Tubby, squatting on the floor in the other room, saw the sun and all the stars swing slowly over to one side—the whole firmament shifting silently under him. The sun was directly underneath when the movement ceased. Looking over to the side window he saw that the moon had risen considerably. It was now so high he could only see it because he was down on the floor.

Sir Isaac returned.

"We'll make good speed now," he said. "We're headed directly toward the sun, with eleven and a half times our former velocity." He sat down beside Tubby on the floor.

It was amazing to stare down through that window at the sun and stars—into the immensity of space directly under them—and to realize that they were falling into it. Yet Tubby was not alarmed, possibly because the vehicle felt so stable, so vibrationless, so absolutely silent and motionless. There had not been the slightest perceptible movement since that first instant when they started. In changing their course it was the stars and sun that appeared to move, not the vehicle.

Tubby pondered all this. "Why don't we feel like we was movin', professor?" he demanded some minutes later. "If we're goin' so fast——"

"My dear fellow," Sir Isaac answered, "you must realize that all motion is relative. There is no such thing as absolute motion—it all depends upon your immediate surroundings. Einstein might tell you that as something very new—yet I have always known it."

"I don't get you," said Tubby, puzzled.

"The Earth," said Sir Isaac, "is flying through space at the rate of some 66,000 miles an hour. You never felt that motion,

did you? But when you are in a train going 60 miles an hour—that motion you do perceive. That is because, relative to your immediate surroundings, you are moving that fast. Do you understand now?"

"No—yes," said Tubby. "I guess so. Show me Venus. When do we get there?"

Venus, which fortunately was approaching inferior conjunction—that point in its orbit when it is between the Earth and the sun—was discernible slightly to one side of the sun at a visual distance of about twice the sun's diameter. Tubby saw it as a very large, bright, blue-white star.

"A telescope would show it as a crescent in its last phase," said Sir Isaac.

Tubby, with their first stop in such plain view directly beneath them, was intensely interested. "Tell me all about Venus," he demanded. "An' tell me how you run this—this inter-planetary house we're in, so you can make it go where you want o'."

Sir Isaac glanced at his watch. "Twelve fourteen. You must get some sleep soon. I will explain the operation of my vehicle tomorrow."

Tubby realized he *was* a little sleepy. "How long we been travelin'?" he asked. "Two hours and twenty-seven minutes."

Sir Isaac pulled out a lead pencil and a little slip of paper and began a rapid calculation.

"We are now about 947,000 miles from the Earth," he announced.

"In two hours an' a half! That's some travelin'."

Sir Isaac smiled. "I should not say that—however, it is quite satisfactory. I started very cautiously. We went through the Earth's atmosphere considerably less than one one-hundredth that fast. I increased our velocity soon after that—and just now, when I altered our course, I increased it again eleven and a half times."

"GO ON," said Tubby. "Tell me more. Tell me more about Venus."

"Venus," began Sir Isaac, "is a globe very little smaller and of very slightly less density than our Earth. Its mass, hence, is only a little less—gravity on its surface being .88 that of the gravity on the Earth. . . . Do you follow me? I'm only talking in round numbers, of course."

"Of course," Tubby agreed. "Go on."

"It revolves on its axis once in 23 hours, 4 minutes and 19¾ seconds. Those are my figures, you understand—they are quite ex-

act. Therefore, its day is very similar in length to our own. Its orbit lies about 67 million miles from the sun—some parts of it farther, some nearer. The Earth, you know, revolves at a mean distance of about 93 million miles from the sun. Venus makes one complete revolution around the sun in a little more than 224 days—hence its year is that long—about a third shorter than ours. Venus has seasons just as we have—only less marked. Its atmosphere is a little denser than ours, but altogether Venus is more like the Earth than any other of the planets."

"Good," said Tubby. "Go on."

"It has no satellite," Sir Isaac added as an afterthought.

"What's a satellite?"

"A satellite is a smaller body revolving about a planet, just as a planet revolves around the sun. The moon is the Earth's satellite. It revolves around the Earth about once a month."

"How far away?" Tubby demanded.

"Oh, very close. Only about a quarter of a million miles. We are already four times that far from the Earth. You can see how close the moon and Earth are together now. Look!"

Sir Isaac pointed to the side window, pulling Tubby over on the floor nearer to it. The moon had risen still further, and had dwindled greatly in size. The tip of the Earth, very much smaller than before and more silvery, showed in the upper corner of the window.

"Why, they're gettin' right together," Tubby exclaimed. "That moon really belongs to us, don't he? He's our little brother!"

"Yes," said Sir Isaac. "We'll stop off there going home. Now about our present velocity. Venus, at the time we started, was about 31 million miles from the Earth. We have already gone about one million, at an average rate of some four hundred thousand miles an hour. I have now increased this velocity to four million, six hundred thousand miles per hour."

Sir Isaac looked a little worried as he named these figures. "I hope we don't hit anything," he added anxiously.

"Hit anything!" Tubby echoed. He glanced down through the window at the heavens beneath. "Ain't we got plenty of room? It looks like we had plenty."

Sir Isaac sighed. "All space is relative to motion. We *haven't* very much room at

this velocity. It's so crowded in here near the sun. Outside—particularly beyond Neptune—things will be different. Then I can really put on speed."

He shrugged. "You go to bed, Tubby. I'll watch here. I don't fancy we're in any great danger."

"Right," said Tubby. "If you see anything comin' you steer around it." He got to his feet. "Good night, professor. I'm goin' upstairs right away. When do we land at Venus?"

Sir Isaac was again absorbed with his mathematics, the sunlight from below lighting with strange outlines his lanky figure and earnest, intellectual face.

"What?" he asked abstractedly.

Tubby merely repeated his question.

"I shall alter our course later tonight," said Sir Isaac. "I am using the sun's attraction now. It's a little longer route, but simpler. Later I shall head directly for Venus and slow down somewhat."

He added:

"I'll call you about six o'clock. We will be fairly close in by then. We'll land shortly after breakfast.... Good night."

"Good night, professor. Don't make no mistakes with them figures, will you?"

He turned, and climbing to the floor above, carefully selected the better of the two beds and soon was snoring heavily.

CHAPTER III

TUBBY had gone to sleep in the starlight and very dim moonlight. He awoke most uncomfortably warm, to find the glaring sunlight beating directly on his bed through the bedroom window. For a moment he did not know where he was. The sun, larger than he had ever seen it before, was about level with the window—shining among the stars in the black sky, intolerably bright, excessively hot. He lay blinking and gasping; then with returning memory, he leaped out of bed and jerked down the green roller shade.

The vehicle was without vibration, silent as before. The room was hotter than midsummer. Where was the professor? Was anything wrong? What time was it?

"Oh-h, professor!" Tubby bellowed.

Sir Isaac's voice answered him from below.

"Oh, you're awake, are you? Come on down. Dress as coolly as possible."

Tubby was dressed in a few moments,

putting on his thinnest clothes—white flannel trousers, white buckskin shoes and white negligee shirt—which he had found in the bureau drawers and the wardrobe. He was glad to find them there, and glad that they fitted him so perfectly, for he wanted to look his best when arriving on Venus.

When he got downstairs he found Sir Isaac also dressed all in white, with his shirt sleeves rolled up and his shirt open at the throat exposing half his bony but broad chest. Around his forehead was tied a white silk handkerchief to keep the hair out of his eyes. He was sitting at the instrument room table, working at his interminable figures.

The side window of the room, which was now turned away from the sun, showed only the black void of space with its glittering stars. Through another window, in the floor directly under Sir Isaac's feet—which Tubby had not known to be there since it had been covered the night before—a soft, pale-blue light was streaming. It flooded the entire room, more intense than moonlight, but blue rather than silvery.

Sir Isaac looked up from his calculations and smiled.

"Good morning. I was just coming up to call you."

"The sun woke me up," said Tubby. "It's awful hot up there.... It ain't so cool down here either.... What's that blue light from? How are we getting on? What time is it?"

Sir Isaac laid down his pencil reluctantly.

"Seven thirty-three," he said. "You've had a good long sleep. I just altered our course again. We intersected the orbit of Venus twenty-seven minutes ago, so I thought I had better turn and head directly for her. That's why the sun swung up to your window."

Tubby hung his natty Panama hat on a rack and approached Sir Isaac.

"What's that blue light? Venus?"

Looking down through the window, Tubby saw directly beneath them an enormous blue half moon, with dark, irregular patches all over it. Against the black background of space it glowed with intense purity—its pale-blue light making it seem ethereal—unreal.

"That is Venus," said Sir Isaac softly. "You can see the whole of the sphere when your eyes become accustomed to the light."

A moment more and Tubby saw the dark, unilluminated portion. He saw, too, that

where the edge of the light crossed the face of the globe it was not a continuous line, but was broken into many bright spots and patches of darkness.

"That's where the sun strikes the tops of the mountains," Sir Isaac explained. "The dark places are valleys and plains. . . . Let us have breakfast. Aren't you hungry?"

"No—yes, sure I am." Tubby rose to his feet from where he had been kneeling heavily on the floor. "That Venus is awful pretty. How far away is she? When do we get there?"

"We intersected her orbit at a point 1,142,606 miles away, roughly speaking," Sir Isaac replied. "I had to change our velocity once or twice during the night—but still I fancy I may say we have done fairly well." Sir Isaac drewled this out complacently. He was, indeed, very English at times.

"I ain't got nothin' to complain of," Tubby agreed. "When do we land?"

"Our present velocity is only 375,001 miles per hour. Venus is coming toward us at the rate of some 68,000 miles per hour. . . ." Sir Isaac seemed to be calculating in his head. ". . . But allowing time for landing—we shall have to slow up much more a little later on, you know—well, I think we should be there by ten-thirty or eleven o'clock this morning."

"Very good," said Tubby briskly. "Come on. Let's eat."

They had bacon and eggs for breakfast, and iced coffee with whipped cream, because it was too hot for regular coffee. Tubby would have made pancakes, but there did not seem to be any maple syrup, at which he was exceedingly annoyed. Several times during the meal Sir Isaac went into the instrument room for a moment to make a brief calculation, to verify their course and to decrease their velocity a little.

TUBBY'S questions about Venus were incessant at first; but as Sir Isaac said, why discuss it theoretically when they were to see it so soon?

The store-room, which they were using as a dining room because it adjoined the kitchen, was directly under Tubby's bedroom. The sun hung level with its window, but they kept the shade closely drawn. After breakfast they returned to the instrument room, Tubby insisting he would not wash up the dishes so soon after eating; and Sir Isaac showed him the Earth. It was about

level with the instrument room side window and thus almost exactly opposite the sun. So far as Tubby could see it was a star no different from any of the rest of them, except possibly a little larger. The moon, of course, was invisible.

Venus, through the window beneath their feet, had grown very much larger during breakfast. It was now an enormous glowing ball, half dark, half light, apparently nailed fast to the black surface of the firmament. The sensation that they were high above it and falling directly down to its surface came to Tubby suddenly. It made him a little giddy at first; but the unpleasant feeling soon passed away.

For nearly an hour they sat talking idly, while this glowing sphere beneath them grew steadily in apparent size. They could distinguish even its dark portion quite clearly now, and its convexity was unmistakable. They were hardly more than 25,000 miles above its surface, and falling slightly toward its northern hemisphere, when Sir Isaac suggested that Tubby wash up the breakfast dishes.

"I shall go down through the atmosphere very slowly," he said. "But still I think we shall be there in rather more than an hour."

Tubby hastened into the kitchen, and Sir Isaac, pencil and pad in hand, took his station at the keyboard. When Tubby finally returned the instrument room was considerably darker than before. Sir Isaac, with two small electric bulbs lighted, was still seated at the keyboard.

"Say," began Tubby indignantly, "the sun went behind a cloud or somethin'. I ain't quite finished, but I don't know how to light the lights."

They had already entered the atmosphere of Venus, and had encountered, as chance would have it, a heavy bank of clouds—heavier than clouds ever are in the atmosphere of the earth. The sun thus obscured, the interior of the vehicle had grown quite dark.

"Never mind," said Sir Isaac. "Let it go. We'll be there very shortly."

Tubby located his Panama hat, rolled down his sleeves, and donning a thin blue serge jacket sat down to await their landing. He could see nothing but grey mist through either window for a time; then, as they burst through the clouds, the room suddenly brightened.

Sir Isaac bent over the window in the

floor, calling to Tubby. Beneath, spread out in a vast panorama extending to the horizon in every direction, lay the landscape of Venus—forests of green vegetation; a thin silvery ribbon of water; tiny grey blobs that were cities; and in the distance a range of blue-green mountains with heavy white masses of clouds above. And, curiously enough, by a familiar optical illusion, it seemed now a concave surface, as though they were hanging over the center of a huge shallow bowl, with the horizon rising upward to form its circular rim.

"My!" exclaimed Tubby. "Ain't that pretty? Just like bein' in a airplane, ain't it, professor?"

Sir Isaac, hovering anxiously between the floor window and the keyboard, was now exceedingly busy.

"I've got to select a landing place," he said. "If you see a large open space where there are no trees, tell me at once."

Tubby, forgetting the possible damage to his white trousers, sat down on the floor beside the window, peering intently downward. They were falling rapidly; the landscape grew momentarily larger in detail, passing slowly to one side as they fell diagonally upon it.

The instrument room was now hotter than ever before. Tubby took off his hat and coat again, and dashed the dripping perspiration from his face.

"Hey, professor, slow up a little," he called to Sir Isaac at the keyboard. "We're gettin' pretty close."

They were now at an altitude of hardly three thousand feet. The circular horizon had already risen so that the range of mountains in the distance was visible through the side window. It was a beautiful day outside—subdued rays of sunlight filtering through the white cloud masses and falling upon the vivid green countryside in brilliant patches of light.

They passed over the narrow river, and Tubby saw an open space surrounded by tremendous forests of tangled green vegetation, with occasional white blobs that might have been houses. Beyond, perhaps five miles distant, a city lay—its low stone buildings gleaming a dazzling white.

When they were directly over the open space, Sir Isaac depressed another key sharply; and the vehicle began falling vertically downward, with constantly decreasing velocity, until, when they were only a few

hundred feet up, it seemed floating gently down rather than falling.

Sir Isaac's eyes were now glued to the window, his fingers resting lightly on the keys. Tubby stood up and put on his coat again; and a moment later, with scarcely a perceptible jar, they landed on the surface of Venus.

Sir Isaac relaxed, his face radiating triumph.

"We have landed," he cried exultantly. "A perfect trip, my dear fellow—12 hours, 14 minutes and 7 seconds elapsed time!"

"Right," said Tubby. "We're here. Come on professor, let's go outside an' get some air."

"WHAT'S that?" Tubby exclaimed abruptly. "Don't you hear somethin', professor?"

Music was wafting to them on the breeze—soft, liquid tones like the music of a harp, and the sweet, pure voice of a girl singing.

"It's over there," Tubby half-whispered. "Over in the banana trees. Come on—let's go see."

They crept quietly forward; and within the grove of trees came upon a tan-bark path. As they followed it the music grew steadily louder, until nestling under the huge spread of banana leaves they saw a little white marble pavilion, with a tiny splashing fountain before it. The figure of a girl in white reclined beside the fountain—a girl who was apparently alone, playing on a small harp-like instrument and singing to its accompaniment.

"Hello-o!" Tubby called incautiously.

The girl sprang erect; and stood trembling, lyre in hand, as they hurried forward. Tubby saw she was a rather small, very slim girl, dressed in a flowing white garment from shoulder to knee, which was gathered at the waist with a golden cord whose tasseled ends hung down her side.

"Good morning, me'an," he said graciously. "It's a nice day, ain't it?"

The girl smiled, seemingly reassured by his greeting.

"We trust you speak our language," Sir Isaac added anxiously. "It has always been my theory that on Venus—"

The girl replied in a gentle, softly musical voice:

"I speak the language of the North Country of Venus, sir."

Her fear seemed to have left her. She

stood, with dignified bearing, waiting for them to explain their presence.

Sir Isaac, with infinite relief on his face, turned to Tubby. "You see? I am vindicated. I always knew that on Venus—particularly in the North Country—the language was—"

Tubby frowned. "My name's Tubby," he said to the girl. "An' my friend's name is—"

"Sir Isaac Swift DeFoe Wells-Verne," stated Sir Isaac impressively. "We are charmed to meet you, Miss—er—"

"I am called Ameena," said the girl, simply; she extended her hand in most friendly fashion.

When they had all shaken hands, she added:

"You are not of my world, surely. We so seldom have visitors here. I cannot tell—"

"We're from the earth," said Tubby promptly. "We just got in this mornin'."

"The earth!" Ameena exclaimed. She seemed suddenly perturbed. "I had thought you were Mercurians—men of the Light Country perhaps. We have never had earth-men here before. Never have I seen—"

"No," said Sir Isaac. "We are the first."

The girl had seated herself on the marble rim of the fountain; her pretty little face was clouded over with anxiety.

"I am so glad you came," she said after a moment of silence. "Now I can warn you of the danger to your earth. My people are so indolent. The Martians are about to descend upon your earth and conquer it. Rebels from the Twilight Country of Mercury are their allies. Only last month they were here in Venus—emissaries asking our people to join with them." She shrugged. "We would not do that, of course. What is war to us? These Martians do not covet our world, for we have nothing—only our fruits and our wine and our simple buildings, and our music and poetry—and love-making."

She added, "But your earth—that is different. Your world they desire. They—"

"Martians to conquer the earth!" Sir Isaac gasped, stupefied.

"They have gone to Jupiter also," Ameena went on. "When they found we would not join with them, then they said they would enlist help from the great Jovians themselves. I do not know if—"

"Oh, my gosh!" Tubby was almost speechless with fright.

"To conquer the earth!" Sir Isaac repeated. "When, Ameena? Only tell me when?"

She answered quietly, but with obvious agitation:

"Already they have conquered your moon. Your poor Selenites could offer but little resistance, and a Martian outpost is established there. And the Twilight army of Mercury is already massed in readiness on Mars."

She paused; then added swiftly:

"At the next opposition of Mars with your earth—only two months off they say it is—then the Martians and their allies will descend in hordes upon you!"

CHAPTER IV

IN TRUTH it was a drastic, desperate situation for their native earth of which the voyagers were thus unexpectedly informed. Even without his reference books, or the use of mathematics, Sir Isaac's well informed mind told him that they had no time to waste. Mars would reach opposition—that point in its orbit when it was nearest the earth—in just 57 days, 6 hours and 30 minutes from the present moment. Sir Isaac knew that. He also knew that if the miserable renegades of the Twilight Country of Mercury were allied to the Martians in an attack upon the earth, this attack, when it occurred, would be irresistible. And already the enemy had conquered the moon—occupied it—established there a hostile outpost barely 250,000 miles away!

Sir Isaac's stern, intellectual face was pale as he questioned the Venus-girl more closely. Tubby, when the details of this dastardly plot began to sink into his mind, spluttered with indignation.

"How dare them people attack our moon?" he demanded. "That ain't right. We never did nothing to them. What are we going to do about it, professor? We got to do something."

Sir Isaac had seated himself beside Ameena on the fountain rim. He was trembling a little, and his thin lips were pressed tightly together.

"Yes," he said, struggling to keep a semblance of composure in his voice. "Yes, you are right. We must do something. But what?"

"That's what I said—what?" Tubby prompted. "Go on, professor."

He had so forgotten Ameena's gracious beauty in the excitement of the moment that his hat was now jammed on the back of his head, and his fat little fists were clenched belligerently.

"It isn't the moon I'm worried over," Sir Isaac went on musingly. "That's a mere detail. It's the safety of our earth itself. If they land there in any strength at all we'll be annihilated in a day—every living being on the earth! Why with that Mercurian Light-ray—and with those great machine bodies to house the Martian Intelligence—" Sir Isaac broke off, overcome at the thought his words invoked. He recovered after a moment, however, and added to Tubby and the girl impartially:

"I fancy you have never read my books. I've told all about it in them."

Ameena shook her head; Tubby seemed embarrassed.

Sir Isaac obviously was disappointed. "Oh well, of course here on Venus they had no sale. It is immaterial. . . . This attack on our earth is too horrible—it is unthinkable. It must not be."

"No," agreed Ameena soberly. "It must not be. But what can we do to prevent it?"

"We?" exclaimed Sir Isaac. "You will help us?"

She held out her two hands simply; and Tubby and Sir Isaac impulsively grasped them.

"I could not let my cousins of the earth come to harm for lack of my help," she said quietly.

Sir Isaac, sentimental by nature, was again overcome with emotion; Tubby pressed the girl's hand warmly, beaming on her.

"That's fine, Ameena," he declared. "You are a regular girl, ain't you?"

There was a brief pause. Then Ameena said:

"I do not know if in Jupiter they are lending help to the Martians or not. But in the Light Country of Mercury I know they hate the Twilight People—these outlaw neighbors of theirs who are joining with the Martians. They of the Light Country, perhaps, would help us."

"The Light Country of Mercury!" Sir Isaac echoed. "By jove, how stupid of me! Of course! They, too, have the Light-ray. With one Light-ray we can fight the other!"

"Fine," agreed Tubby, still beaming at

Ameena, who flushed prettily under his openly admiring gaze.

Sir Isaac stood up with determination. "Mercury is now fortunately approaching inferior conjunction with Venus. It is barely thirty million miles away from us at this present moment. Let us go to Mercury at once!"

"Come on!" cried Tubby enthusiastically. "Let's go. Let's aim to get there this afternoon—we can if we hurry." And clutching Ameena by the hand, he started off at a run through the giant banana grove, Sir Isaac following close behind.

After a hundred yards Tubby stopped abruptly, almost jerking Ameena off her feet.

"Say, listen, little girl—how about your family? Ain't your family liable to get scared, you runnin' out into space this way without sayin' nothin' to nobody?"

Sir Isaac also seemed worried by this thought, but the girl smiled readily. "I have heard about your earth families," she said. "In Mercury they have them also. But here on Venus there is only the State and the Individual. At fourteen I was free from control of the State. I am my own mistress now." She raised her arms with a pretty gesture. "Even love has not come to me yet. I am free."

Sir Isaac was relieved. "Of course! Naturally. How stupid of me. I should have known that on Venus—"

"Great," said Tubby. "Come on then—let's get goin'." He started off again as fast as his fat legs would carry him.

THEY departed from the surface of Venus ten minutes later, hurtling up through the atmosphere at a velocity that heated the interior of the vehicle like an oven. Sir Isaac put its cooling system into operation at once—chemically cooled coils over which air was driven by electric fans and then circulated through the various rooms—after which, ignoring their guest, he seated himself at the instrument-room table and began a computation of their course to Mercury.

Tubby showed Ameena over the vehicle with enthusiasm. He had forgotten for the moment the dire portent of this new journey and was like a boy on a holiday. The girl was intensely interested in everything, especially in the marvelous, ever-changing aspect of her own world as they slowly turned over and dropped away from it.

"You can have all the upstairs to yourself," Tubby declared, with due regard for the conventionalities. They were standing then in the doorway of one of the dainty little chintz bedrooms. "The professor and I'll bunk downstairs. He's a real nice guy, the professor—you'll like him."

"I'm sure I shall," Ameena said. Her eyes, glancing at Tubby sidewise, were veiled by their heavy black lashes. She added softly:

"And you, too, my friend Tubby."

Tubby did not quite realize it then, but, indeed, this Venus-girl, typical of her race, had a distinct talent for love-making.

When they came to the kitchen, Tubby was much embarrassed over the remains of the breakfast dishes. But Ameena proved herself a real housewife by immediately assuming charge of this department of the vehicle. She began washing the dishes at once—a curiously incongruous sight in her Greek-maiden robe as she bent over the kitchen sink!—while Tubby stood admiringly by, watching her.

When the kitchen and store-room were immaculate, Tubby and Ameena returned to the instrument room. The sun was shining up through the lower window; the vehicle was cooling off a trifle since leaving the atmosphere of Venus; they were now well launched into space.

Sir Isaac, having completed his computations, greeted them triumphantly.

"We have traveled 2,138 miles," he said. "I am heading directly for the sun now. I have been taking it very slowly until a moment ago."

"Very good," Tubby agreed, with a most business-like air for Ameena's benefit. "But we got to hurry from now on if we're going to get there today."

They sat down then to discuss the future. There was really very little to discuss, as a matter of fact, for Ameena's knowledge of war conditions throughout the solar system was very slight. What the voyagers could do to protect the earth depended upon two factors. Had the great Jovians joined in this dastardly war? And would the Light-Country of Mercury lend its aid—its Light-rays and other weapons—for the earth's defense?

"Well," said Tubby, "we'll know pretty soon. What's the use arguin'? Ain't I right?"

Sir Isaac yawned involuntarily in spite of

their interesting argument. He looked embarrassed.

"You're sleepy," exclaimed Tubby solicitously. He added to the girl:

"The professor ain't had a wink of sleep since we left the earth last night. He'd better go take a nap."

Sir Isaac was indeed tired out. "I must direct our flight," he said. "I cannot leave our course to—"

"Why can't you?" Tubby demanded. "I ask you twenty times already to show me how this here thing works. I can run it the same as you, if you show me how just once."

IN THE face of his growing fatigue which would not be denied, Sir Isaac was forced to yield.

"My inter-planetary vehicle operates upon a very simple principle," he began. "First you must know that the law of gravitation says that every body in the universe attracts every other body directly as the mass and inversely as the square of the distance between them."

Tubby and Ameena were all attention.

"We don't quite get you," Tubby said.

"Directly as the mass means that if one body weighs 100 tons and another weighs 10 tons, the big one will exert ten times the attractive force of the little one."

"That is very clear," said Ameena.

"Go on," nodded Tubby.

"And inversely as the square of the distance means that when bodies are twice as far apart they only exert one-fourth the attractive force upon each other. Thus you see every mass of matter in the universe is attracting every other mass according to those laws."

"Now each of the six faces of this vehicle—top, bottom, and the four sides—is lined with a metallic plate. This very curious metal is found principally on Mercury—although, as I have shown in my books, it has been prepared by one scientist on earth—he who went first to the moon. My projectile, fired from an enormous cannon, you remember, failed to reach the moon, but merely encircled it."

"I remember that other one," Tubby exclaimed.

Sir Isaac was pleased. "Yes. . . . That was where I explained my gravity screen. . . . Well, we are using now a device very much like that, only vastly more efficient. You see, in this particular interplanetary

vehicle I have a current something like the Mercurian Light-ray, and something like our own electricity. With it I charge any or all of these metallic plates both negatively or positively. I mean, I can make them *neutral to gravity*—so that gravity is cut off entirely as in the cast of the gravity screen. Or I can make them *attractive*, or *repellent*. Without any charge, you understand, they are attractive, as all matter is. With my negative charge they repel with exactly the same force as normally they would attract."

"Ah," said Tubby.

Sir Isaac warned to his task. "Let me explain to you the exact result of this. When we were resting on the earth's surface, I cut off—only partially, for you see the change may be made with any rapidity desired—the gravity from our base. Having then an insufficient attraction from the earth to hold us there, we left its surface, flying off at a tangent because of the earth's rotation on its axis. . . . But I won't go into that. . . . Once in space, as we are now, I merely make one face attractive, and the others neutral or repellent. Thus the attractive face acts on whatever heavenly bodies be in the direction, and we are drawn toward them. For greater speed I also use the repellent power of those bodies lying behind us. For instance, after leaving the earth, I used the attraction of the sun—only a portion of it, of course. Later, merely for experiment, I combined with that a fraction of the earth's repulsion. Early this morning, when we approached Venus, I used *her* attractive power, cutting off the sun completely."

Sir Isaac turned to the keyboard. It was quite similar to the keyboard of a very large typewriter—and with more keys. These keys were of three different colors—white, red and black—and all of them were numbered plainly.

"These keys," said Sir Isaac, "you will observe are on six banks—each bank governing a different face of the vehicle. For instance—" He indicated the lowest row of keys—"this bank governs our base. And this, the top of the vehicle—and these are the sides.

"There are, you notice, fifteen keys on each bank. When they are all up there is no action at all—the face allows any heavenly body to attract with its full, normal force. But, when I press down this red key—each bank has one, you see—then the

face becomes neutral to gravity. The seven white keys give seven different intensities of attraction, and the seven black ones give seven different intensities of repulsion. A key pressed down stays down until you pull it up."

"Sure," agreed Tubby. "That ain't so awful complicated."

Sir Isaac went on:

"You will understand then that when number seven white key is down, the face is fully attractive, just the same as it is with *all* the keys on that bank up. Do you follow me?"

"Absolutely," nodded Tubby. "I doped that out long ago."

"Well," said Sir Isaac, "with these ninety keys, working singly or together, a very great number of combinations can be obtained. We can go in any direction we choose, and at almost any velocity—at least I have never been able to calculate any limit to the velocity if sufficient time for acceleration is allowed."

"Right," agreed Tubby. "You mean we don't get up speed all at once—we keep goin' faster. That's good. . . . Show us what's doin' oow."

"Our present course is very simple," continued Sir Isaac. "You observe five of the red keys are down—the top and all four sides of the vehicle are neutral to gravity. On the bank governing our base the first white key is down. We are being drawn toward the sun, pulled by one-seventh of the sun's attraction. If we wanted to go faster we could use more of the sun's attraction, or some of the repulsion of Venus. If we wanted to go slower, we could combine some of the attraction of Venus, which would act as a drag. By balancing the attraction of Venus and that of the sun we could stop entirely. . . . I think I shall use another seventh of the sun's attraction. Watch carefully."

Sir Isaac suited the action to the word, pressing down the second white key of that bank, and then releasing the other.

Tubby watched closely. "That's easy. What else?"

For half an hour more Sir Isaac explained the navigation of space—with practical demonstrations, during which he made the heavens swing over at will in most dizzying fashion as he altered the vehicle's course. Finally Tubby announced himself satisfied, and competent to assume charge for a few hours at least.

"You go lie down," he said. "We'll get you up when Ameena has lunch ready."

Still Sir Isaac hesitated. "In half an hour," he explained, "I would, I think, increase our speed by using about three-sevenths the repellent power of Venus."

He indicated the changes. "Our velocity is steadily increasing as we approach the sun—but we must go still faster. We are in a hurry."

As he turned to leave the room, his face clouded with sudden anxiety.

"We shall shortly attain a velocity of nearly seven million miles an hour," he said soberly. "I—I hope I'm not taking too great chances. It's so crowded in here with meteorites. We've been marvelously lucky so far."

"Go on to bed," commanded Tubby. "I ain't goin' to let us hit nothin'. I'll watch. If I see anything comin' I'll thump them keys, or yell for you."

Most reluctantly, Sir Isaac gave up command; and, with Ameena's gracious permission, he retired to one of the upper bedrooms.

IT REALLY was Ameena's fault, though Tubby was too much of a gentleman ever to say so—for if Ameena had not called him into the kitchen it could never have happened. She had gone to prepare the noonday meal, and Tubby reluctantly had parted with her and maintained his post at the lower window of the instrument room. The sun shone up at him intolerably bright.

Nothing showed in the sky below, except that huge, flaming red ball slowly but steadily increasing in size—the sun as it appeared through the smoked glass—and those glorious constellations of stars hanging immovable in the black firmament. In thirty minutes exactly, by the instrument room's chronometer—Tubby had added to their velocity three-sevenths the repellent power of Venus. This world they were so rapidly leaving hung directly overhead—an enormous silver-blue sphere now completely illuminated by the sun, but visible only from the upper windows of the vehicle.

It was just after he had put on the additional speed that Ameena had called Tubby into the kitchen to ask him how to open a can of tomatoes for canned goods were unknown on Venus. Tubby, once in the kitchen, had forgotten to return to his post. He was sitting in the doorway of the ad-

joining store-room, chatting vivaciously with Ameena, when suddenly he became aware of an unusual light coming diagonally in through the side window.

Leaping up, he saw in the black, starry void a huge silver disc—a thousand moons in size! It was below them, off to one side. It was so close he could see barren, rocky mountains on it; and it was turning over like a ball thrown into the air. Even while he gazed, with his heart in his throat, it doubled in size, so stupendously fast was it approaching—and already exerting its attractive power upon the base of the vehicle, it was altering the vehicle's course so that the heavens began shifting sidewise.

With a startled cry, Tubby dashed into the instrument room, Ameena following him with the can of tomatoes still in her hand. Through the instrument room floor window the heavenly derelict, again doubled in size, shone directly beneath them. They were rushing into it, drawn irresistibly by its attraction!

Tubby took one horrified glance, and then, jumping to the keyboard, he depressed half a dozen of the keys indiscriminately. There was no answering vibration perceptible within the vehicle; but outside its windows the heavens were whirling! The sun, Venus, the threatening derelict globe, a myriad of stars—all flashed past the windows so rapidly they were distorted into mere blurs of light. The vehicle, beyond control, was spinning on its axis and falling abandoned in space!

Tubby and Ameena, standing stock-still on that solid, apparently motionless floor, were giddy at the sight.

"Oh-h, professor!" Tubby bellowed. "Help, professor! Come here quick! We're fallin' to pieces!"

Sir Isaac came clattering downstairs, his apparel awry, his face still dazed by sleep. With one quick glance at the windows he hastened to the keyboard. Tubby and the girl stood anxiously beside him.

"Somethin' w-went wrong," Tubby chattered. "There's a h-hug world right outside. We war r-runnin' into it."

The vehicle, spinning like a top, gave Sir Isaac no opportunity of locating the correct keys to depress. He first threw them all into neutral; then tried, tentatively, throwing the attraction into the base of the vehicle for that instant when it was facing Venus, and releasing it an instant later.

For five minutes he worked, his face pale with anxiety. "Am I stopping our rotation?" he asked. "Are we slowing down?"

Tubby forced his gaze to the window and saw that the heavens were spinning with a little less rapidity.

"Go on," he encouraged. "You're doing fine."

"I don't dare leave everything in neutral," Sir Isaac muttered to himself. His gaze was glued to the floor window; the perspiration was rolling down his face. "Inertia would carry us forward on our former course without any force of attraction. We could not avoid collision. Perhaps we cannot anyway."

"Don't say that," pleaded Tubby. "Go on. You're doin' fine."

Ameena now crouched on the floor, gripping a chair leg to steady herself; and peered intently downward through the window. At each instant when Venus came into view she called to Sir Isaac, and he promptly depressed the necessary key, releasing it once the planet had swung past. With Ameena's help he did this more accurately than before, and gradually the vehicle's axial rotation was decreased. Finally they caught Venus and held it directly beneath them.

Sir Isaac stood up, trembling. "Thank God!" he exclaimed. "We are headed the other way. The danger is past."

NOW that the excitement was over, Tubby felt extraordinarily weak in the knees. He sat down in a chair, panting.

"What was it, professor? What happened?"

"An asteroid," Sir Isaac answered, smiling weakly. "A minor planet, unknown to astronomers. I knew its orbit lay in here, but I had calculated the asteroid itself to be on the other side the sun this month—(oo) that I was!"

A moment later, carefully, Sir Isaac resumed their former course. The asteroid had disappeared; the sun now shone up from beneath them as before.

"How close did we come to it?" Tubby asked, when they had all three recovered calmness. "I guess we didn't miss it by more'n a mile."

"We passed it about 4000 miles away!" Sir Isaac answered.

Tubby was amazed. "Four thousand miles! An' I thought we nearly hit it!"

Sir Isaac smiled. "I should not care to come any closer. Our velocity at that moment was 7,200,000 miles an hour. That is exactly 2000 miles per second. In just two seconds more we would have collided with that asteroid and been annihilated! That's why I said we were crowded in here. It is very dangerous to approach within a million miles of anything."

They had lunch shortly after that, Sir Isaac insisting on having his served on the store-room floor so that he might keep close watch through the lower window there, for comets, and even infinitesimal meteorites, as well as asteroids, were to be avoided. As Sir Isaac pointed out, to collide with even a hundred-ton meteorite at a velocity of 2000 miles a second would be a fatal catastrophe!

After lunch, over their cigars, while Ameena straightened the kitchen, Sir Isaac told Tubby about Mercury, which he had hoped they would reach about five o'clock that afternoon, but which now they might not arrive at before six or seven o'clock.

"Mercury," Sir Isaac explained in his slightly pedantic way, "is the smallest of the major planets, and the closest to the sun. Its orbit lies at a mean distance of 36,000,000 miles."

"An' how far did you say Venus was from the sun?" Tubby asked. He was becoming avid for astronomical mathematics.

"Sixty-seven million," answered Sir Isaac.

"An' the earth is 93,000,000. An' the moon a quarter of a million from the earth." Tubby was memorizing the figures. "All right. Go on."

"Mercury makes one revolution around the sun every eighty-eight days. That is the length of its year. It is so close to the sun that the enormous solar attraction holds one side of it always facing that way. Hence its axial rotation is also once in eight-eight days, and it has no day or night—always daylight, twilight or darkness according to what portion of its surface you are on."

"What part are we goin' to?" Tubby demanded.

"To the Light Country, where there is daylight—but it is not too intense. Heavy clouds and a dense atmosphere make life possible on Mercury, even though it is so near the sun. In the Fire Country, which directly faces the sun, the planet is practically uninhabited. We will land at the

Great City—the largest center of population on the planet. It is the Light Country people we want to enlist as allies, against their outlaw neighbors, the Twilight people and those horrible Martians."

This brought them again into a discussion of the Martiao plot which they were determined at all hazards to frustrate. Ameena joined them shortly after that, and for hours they argued, without however, reaching any new conclusions.

Sir Isaac was momentarily growing more sleepy; and finally, when Tubby had solemnly promised that for two hours he would not leave the window under any circumstances and would call out at once if anything unusual came into sight, Sir Isaac again retired. They were then about 18,000,000 miles from Mercury, which shone as the brightest star in the lower hemisphere of the firmament, visually quite near the sun's outer limb. And so great was their haste that again Sir Isaac had resumed almost their former speed.

During these two hours, Tubby and Ameena sat on the floor by the window, exchanging accounts of their respective worlds.

"I'm strong for Venus," Tubby declared once. "When we get these Martians put in their place, an' get our moon back, I believe I'll come to Venus to live."

The girl agreed that would be very nice indeed; and Tubby, intoxicated by her beauty and the fragrance of her person, suddenly laid his hand over hers.

"Ain't this romantic though—shootin' around the sky like this? Sing somethin', Ameena. Where's that harp you had?"

Ameena played on her lyre, and sang; Tubby listened, and complimented her, and urged her constantly for more. Thus absorbed in their youth, the two sat oblivious to the vehicle's course, while the sun blazed larger and hotter, and Mercury grew from a gleaming star to a silver crescent larger and larger until, like Venus of the morning, it stretched an enormous arch in the blackness, with the sun to one side behind it.

Fortunately for the safety of these bold voyagers (and indeed for the future existence of earth itself, which depended upon the success of their mission), no other uncharted wanderers of space chanced to be in the vehicle's path during those two hours.

It was nearly half-past four when Tubby

came to himself. A glance through the window reassured him that all was well, and, reluctantly tearing himself from Ameena's presence, he went upstairs to awaken Sir Isaac.

They entered the atmosphere of Mercury at 6:57 P. M., shortly after a hurried supper. Falling diagonally over the Dark Country, they came into the Twilight Zone. A few moments later the Narrow Sea lay beneath them, and at last they sighted the Great City at the edge of the Light Country.

It was 7:29 P. M. exactly when, with only a slight jar, they landed upon the surface of Mercury.

CHAPTER V

HOW selfish is human nature the Universe over! After a voyage of some thirty million miles, the travelers might quite as well have remained on Venus! The Mercurians of the Light Country were sorry—indeed, they greatly deplored the action of their neighbors of the Twilight Country in joining with the war lords of Mars against the unoffending Earth—but they would do nothing about it! How simple all human problems become, when viewed in that detached spirit! How human nature does repeat itself, wherever in the Universe it may be found!

The audience with the ruler of the Light Country took place at 9:49 p. m., Earth's Eastern Time—shortly after the First Meal, as time chanced to be on Mercury.

Tubby, Sir Isaac and Ameena gravely faced the white-haired King and his aged dignitaries who were seated around a huge table in the Audience Room. The place was crowded; its gallery above, open to the public, was thronged with those curious to see these strange visitors from another world.

Sir Isaac, who, fortunately, was fairly fluent in the Mercurian tongue, explained their mission. He was earnest and eloquent. And when he had finished having done his very best, the King, after a whispered conference with his councillors, made his speech of condolence!

Sir Isaac was aghast. He translated the King's words briefly to Tubby and Ameena.

"How dare they?" the girl cried. "It is inhuman. Tell him I say—"

Sir Isaac interrupted her, in a whisper, for the Audience Room was intensely quiet.

"Your position is not so impregnable, Ameena. Your own people refused to mix up in this interplanetary war. How can you expect—"

"My people have no weapons of war," she defended passionately. "They know nothing of fighting. Never has a voice been raised in anger in my world! What could they do to help, if they would?"

"You let her alone," Tubby whispered vehemently to Sir Isaac. "She's got the right idea. You tell this King *he* can help. Ain't he got that Light-ray? Make him lend it to us."

Sir Isaac then requested the use of the Light-ray—a sufficient amount of its apparatus which they could set up on Earth for defense.

At this a stir ran over the assemblage. The King's guards, squat little men in leather jackets and wide, knee-length leather trousers, shouted for order. Several young girls flapped their long red-feathered wings—only the women had wings, it seemed—and one fluttered across the room near the ceiling, until commanded by the guards to cease.

The King looked exceedingly grave at Sir Isaac's request; his whispered conference with his advisors lasted several minutes. At last he shook his head.

Sir Isaac translated his answer. "He says he is sorry. They could not trust their Light-ray to another world. He claims the Earthmen would then learn its secret and some day might use it against Mercury."

"He's a fool!" shouted Tubby angrily. "Ain't they got it on Mars already? An' maybe oo Jupiter?" He turned toward the King. "Say, listen here you—"

Thirty feet separated Tubby from the King at that moment, but he encompassed it on one bound, for on so small a planet as Mercury even Tubby weighed hardly sixty pounds! He landed beside the King's chair.

"Say, listen here you—"

As Tubby's fat little body went hurtling through the air pandemonium broke out in the room. Girls were fluttering about; the guards were pushing and shoving the crowd. One or two of the older women fainted. A little boy broke into terrified screaming.

The King, finding he was not hurt, ignored Tubby's fist in his face, and with rare presence of mind rose to his feet,

shouting reassuringly to the assemblage. Three of the nearest guards, their faces dark with anger, were making for Tubby belligerently; one of the aged councillors put a restraining hand on his shoulder, but he shook it off.

Sir Isaac howled:

"Come back here, you fool! They'll kill us all!"

It was Ameena's pleading voice, rising above the tumult, that brought Tubby to his senses. He stopped abruptly his abuse of the King, and with another prodigious bound leaped over the heads of the intervening people, and landed back beside his friends.

"Come on, let's get out of here," he gasped. "This here Mercury ain't goin' to get us nothin'!"

Sir Isaac, with true diplomatic suavity, waited until order was restored. He then paid his respects to the King, apologizing for Tubby's conduct, and stating with curt dignity that the Earth would solve its own problems and look after its own safety in its own way. After which, escorted by the King's guards to protect them from the incensed populace, the three visitors coldly departed.

As they left the room, a young girl—with huge wings and a sneering, unpleasant face, so different from the beauty of the other girls in the room as to mark her of another nation—climbed from the balcony into one of its outer windows. Poised there a moment, she launched herself into the air, spread her wings and flew away.

Sir Isaac, Tubby and Ameena were on the palace steps when this girl flew past, just over their heads. She shouted something venomously at Sir Isaac, and rising higher, flew rapidly toward the Narrow Sea and the Twilight Country.

Sir Isaac did not mention this incident then to Tubby or Ameena, who had not noticed the girl. Indeed, he forgot it in a moment, though afterward it was brought most vividly and unpleasantly to his memory.

IT WAS 11:45 p. m., Earth time, when the vehicle was again launched into space. When they had passed over the Dark Country and had left the atmosphere of Mercury—headed this time away from the Sun, back toward Yecous and the Earth—the three inter-planetary adventurers sat down quietly in the instrument room to

determine what should now be done, in the face of this unexpected disappointment.

"An' here we went an' wasted all day," Tabby moaned. "We could have been almost anywhere while we was foolin' around here with them selfish, pin-headed—" He trailed off into abuse of the Mercurians.

Sir Isaac, more practical, summed up the situation as it now stood.

"We have, of course, no means of knowing whether the inhabitants of Jupiter are against us or not," he said. "But at all events, at the next opposition of Mars with the Earth we may expect their attack."

"Less'n two months from now," Tabby put in gloomily.

"In fifty-six days and eighteen hours," Sir Isaac corrected. "I assume their method will be to mass their army first upon the Moon. From that point of vantage, always close to the Earth, they can launch their successive attacks at will."

"That is what they will do," Ameena cried. "From the Moon of course."

Tabby frowned. "What will they do to the Earth? You say they're goin' to kill us, but you ain't never said how."

Then Sir Isaac, his voice trembling in spite of himself, explained the horribly destructive power of the Mercurian Light-ray—that beam of red-green light-fire, which from giant projectors ignited everything within its path over a distance of fifteen miles! And the tremendous war-machines of the Martians—giant mechanical bodies housing the Martian directing brain in their tops—mechanisms with metal legs like steel girders fifty feet long running rampant over the Earth!

"That's enough!" interposed Tabby hastily, mopping his face. "Don't tell us nothin' more like that. My idea is we better oot let 'em land on the Earth."

"Quite right," agreed Sir Isaac. "But how to prevent them? That's just the question."

It was the question indeed, and for another hour they wrestled with it.

"Let's eat," Tabby suddenly announced. "We can do that if we can't do nothin' else."

Tabby now found himself, after this episode on Mercury, somehow more in the nature of leader of their enterprise than he had been before.

"We're done with Mercury," he said, when over the midnight supper the argument was resumed.

Sir Isaac nodded. "We are, most certainly."

"An' Venus ain't no use to us."

"No," Ameena put in. "My world is powerless."

Tabby went on with merciless logic:

"If we go home an' wait, we're licked sure."

"Yes," agreed Sir Isaac, "that will mean absolute annihilation, even though the world's armies and navies were massed to our defense."

"An' we can't land on the Moon," Tabby persisted. "They'd murder us in thirty seconds—on our own Moon too." The pathos of this struck Tabby with sudden force. "Ain't that actually criminal? Can't land on our own Moon!"

"What are we going to do?" Ameena asked hopelessly. "Oh, dear, we cannot seem to land anywhere."

"How about Jupiter?" Tabby demanded. "That's a big place, ain't it?"

"The largest planet of the solar system," said Sir Isaac. "But whether they are friends or enemies—"

"Well let's go see an' find out!"

The logic as well as the daring of this simple suggestion was immediately apparent.

"If them Jupiter people ain't enemies they can help us easy," Tabby added. "Let's take a chance anyway."

There seemed nothing else to do. The Earth was powerless to defend itself. Help must be obtained—from whatever source—at all costs.

And so it was decided.

Back in the instrument room Sir Isaac computed their course to Jupiter. A little later, for it was then nearly three o'clock in the morning, Ameena retired to the upper floor.

The vehicle had now reached a point in space almost midway between Mercury and Venus. Tabby suddenly remembering the asteroid with which they had so nearly collided that afternoon, peered anxiously down through the lower window, to the tiny blue-white disc among the stars that was Venus.

Sir Isaac, hearing Tabby's muttered exclamation concerning the asteroid, laughed reassuringly.

"It has passed on in its orbit," he said. "Rushing around the Sun in a most eccentric ellipse, it is now many millions miles from here."

Having been the one to suggest their future course of action, Tubby was feeling his growing responsibility. He felt simultaneously his need for more specific astronomical information than he now possessed.

"If I'm goin' to boss this expedition," he announced, "I got to have all the dope in my head."

Sir Isaac had frequently been tracing their flight upon a celestial map of his own making, and Tubby now demanded to see it. Sir Isaac produced it readily, from the table drawer, and clearing a space on the table, unrolled it before them. By the light of an electric bulb—for the side and floor windows admitted nothing but starlight—Tubby examined it.

"This is merely a rough drawing I made myself," Sir Isaac explained apologetically. "It shows the solar system—though not at all to scale—and gives a rough idea of the present positions of the planets, and our course up to date."

This is what Tubby saw:

"You notice," said Sir Isaac, indicating with his pencil point, "that the Sun occupies the center of the solar system, and the planets revolve around it in concentric rings which are called orbits. These are not circles, but are ellipses—so that the Sun is not exactly in the center, but a little off to one side—in one of the foci of the ellipse, to be technical. Thus the orbit is somewhat nearer the Sun in one portion and further away in another. The amount of this difference is called the eccentricity of the orbit."

Tubby nodded his comprehension; Sir Isaac went on:

"Fortunately, as you observe, all the planets chance to be on this side the Sun just now. . . . I must alter our course toward Jupiter. We are now headed for Venus, but Jupiter, you see, is considerably further along in his orbit."

Sir Isaac went to the keyboard, and a moment later Venus, as seen through the lower windows, swung sidewise out of sight. A new region of gleaming stars—none of unusual brightness—came into view.

"I am heading well past Jupiter," said Sir Isaac. "We are falling diagonally sidewise now, *forward* by the combined attraction of all these stars, and *sidewise* by the repulsion of Venus and the Earth and all

the stars behind them. This will bring us into a direct line drawn from the Sun to Jupiter—and then I can make better speed by using the Sun's repulsion and Jupiter's attraction combined, which I cannot do now."

By careful consultation of the chart, Tubby finally got this clear.

"It's a longer route," Sir Isaac added. "But I think it will prove quicker. . . . You'd better lie down, Tubby—you're tired out."

Tubby was indeed terribly sleepy—but, unselfishly he realized that Sir Isaac must be also.

"I'll watch," he said. "You take a nap."

But Sir Isaac wished to get the vehicle upon its direct course first.

"We'll be in line with the Sun and Jupiter in about two hours," he explained. "I'll call you then. From then on we will hold the same course all the way."

Tubby yielded, and started upstairs. Then, remembering Ameena, he went into the store-room instead, and with the cushions from one of the chairs of the instrument room for pillows, stretched out on the floor and went to sleep promptly.

* * *

"Wake up," said Sir Isaac, shaking him. "It's seven forty—you've been asleep nearly four hours."

Tubby rubbed his eyes, and clambered to his feet. "What's doin'?" Anything new? Where are we?"

"We're on our direct course to Jupiter," Sir Isaac answered. He had shaved and washed. His hair was slicked back and he was smoking a cigar; but his face was haggard and he looked tired out.

"You can take charge now," he added. "I must get some sleep, if only for a few hours."

Tubby sat alone on a cushion at the floor window of the instrument room. The Sun, from which they were now receding, as Sir Isaac had told him, at a velocity of 15½ million miles an hour, was blazing high over the roof of the vehicle, and thus was invisible from the starlit room downstairs. Through the floor window Tubby could see nothing but gleaming silver stars. One of them, he could not distinguish which, was Jupiter.

Tubby whistled to keep himself awake. After an interval he looked at the chronometer. It was 8:20 A. M. Why didn't Ameena wake up? Tubby was lonesome

and depressed. A little later he went into the kitchen and made himself a cup of coffee. Again he wished fervently Ameena would come down and join him. Should he wake her up? Wasn't it time for breakfast? Wouldn't she even come down?

For another hour he wandered disconsolately about the lower rooms, glancing at intervals through the floor windows to make sure no derelicts were in sight. Remembering Sir Isaac's jaunty appearance, he shaved and washed—fortunately having had the forethought, the night before, to rescue his razor from the bedroom upstairs.

He had about decided in desperation to awaken the girl, when, on an impulse he climbed into the little dome on the roof where Sir Isaac had mounted a small telescope. A moment later he was clattering down through the vehicle, bellowing loudly for Sir Isaac and Ameena.

"Hey, professor! Ameena! Oh, Ameena! Get up, quick! There's somethin' follerin' us!"

Sir Isaac came bounding upstairs from the storeroom, meeting Tubby in the upper hallway. From one of the bedrooms came Ameena's sleepy voice:

"What is it? *Now* I get up?"

Together the two men rushed up into the little observatory. Another vehicle, twice as large as their own and somewhat different in shape, hovered almost directly above them, showing as a dark spot in the firmament and edged with silver from the Sun's rays behind it.

"That Mercurian girl!" Sir Isaac gasped, with sudden memory. "She flew to the Twilight Country! She said she was going to have revenge!"

They were indeed being followed! This pursuing enemy was at that moment hardly more than five million miles away, and was overtaking them rapidly!

CHAPTER VI

SIR ISAAC dashed back to the instrument room three steps at a time, with Tubby at his heels. Ameena came from her room and followed them.

"What is it?" the girl demanded. "Is something wrong?"

Tubby called back over his shoulder:

"Them Mercurians is after us. Right overhead—comin' fast. Come on down—we got to do somethin'."

Sir Isaac rushed to the keyboard.

"Switch our course," Tubby suggested. "Let's see if they can turn when we do. . . Or how about goin' faster? Can we go faster?"

"Wait," commanded Sir Isaac. He depressed two keys—a black one on one bank and a white one on another—and raised the ones which had been down. Then he dashed away upstairs again.

Tubby had no more than time to compliment Ameena on her appearance—she was dressed quite as on the day before, but she was flushed with excitement and her eyes sparkled, so that she was more beautiful than ever—when Sir Isaac was back. He sank into a chair and smiled at them weakly.

"That danger's past, for the moment. We have left them out of sight behind us."

"So quick?" exclaimed Tubby. "Out of sight already? We must be goin' some."

Ameena looked her relief. Sir Isaac made some further adjustments of the keys.

"I've just slowed us up again," he said. "I would not dare go as fast as we would very soon have beto going."

"Well, how fast are we goin' the way you got it now?" Tubby persisted.

"About 28 million miles an hour," stated Sir Isaac. "Of course I haven't computed it yet—but I judge we shall shortly attain that velocity. I am now using six-sevenths of the Sun's repulsion with everything else in neutral. Our rate of speed depends very largely on the length of time allowed for acceleration, you understand."

He gazed down through the lower window anxiously, and muttered:

"Heavens, I do hope nothing gets in our way!"

"Maybe we better slow up," Tubby suggested. It did seem a trifle fast to be going, when he came to think of it. On the other hand such a speed was not in the least beyond his understanding now. Sir Isaac had already explained something of the laws governing freely falling bodies; and Tubby had recalled that old stunt of dropping a baseball from the top of the Washington Monument, which fell so fast even in that little distance that the professional catchers could hardly catch it. The vehicle was more than a freely falling body—it was being *pushed* downward.

Sir Isaac shook his head at Tubby's suggestion that they slow up a bit.

"We must chance the danger," he said,

though not without considerable perturbation. "That Mercurian vehicle may be able to attain this speed also—or even a greater one. We cannot tell."

"Suppose they *should* overtake us," Ameena speculated. "They could not board us—or collide with us without death to themselves?"

"They might have some means of destroying us—I do not know," Sir Isaac replied. "Though possibly the Light-ray is useless in Space." His voice became meditative. "Curious I never thought of *that* before. I suppose it would be inoperative."

"I think," said Ameena, "that they are merely trying to reach Jupiter before us. Perhaps they want to warn the Jovians against us. To persuade them not to—"

"Meaning—" Sir Isaac interrupted eagerly. The poor man's mind was working so constantly that he seemed grateful to anyone who would do his thinking for him.

"Meaning that I think it shows that on Jupiter the rulers are at least neutral."

"Sure," exclaimed Tubby. "You're some clever girl, Ameena. If them Jovians was our enemies, these Mercurian guys wouldn't bother chasin' us there. They'd know we'd get walloped anyhow. You got the right idea, kid." He gazed admiringly at Ameena, and the Venus-girl blushed charmingly.

This conclusion, thus happily arrived at, cheered the three adventurers immeasurably. They now felt tolerably certain of at least a square deal on Jupiter—if only they could arrive there ahead of the enemy.

"Well, that bein' settled," declared Tubby, rising. "Let's eat."

On this flight outward from the Sun they had crossed the orbit of Venus about 6.50 A. M., while Tubby and Ameena were asleep—though this course to Jupiter took them many million miles ahead of Venus' position in her orbit. This Tubby and Ameena readily understood by another glance at Sir Isaac's drawing, which they consulted soon after breakfast.

About 8.15 A. M., while Tubby had been on watch alone, they had crossed the orbit of the Earth—though nearly twice as far then from the Earth as they had been from Venus.

"Mars revolves around the Sun at a mean distance of 141,701,000 miles," said Sir Isaac, some little time after breakfast. "We should have intersected his orbit

about 10.40 A. M.—that was when we were closest to him."

"An' you didn't tell us!" cried Tubby reprovingly. "I want to get a look at that—that murderin' villain."

It was then about ten minutes of eleven. Mars, to which they had passed comparatively close, still showed as a half-lighted, circular, reddish disc. Its tracings of fine intersecting lines—the "canals"—were quite distinguishable.

Even at the enormous velocity the vehicle had now attained, all the heavenly bodies hung apparently motionless in the firmament—except Mars, which because of its nearness, seemed slowly moving upwards as the vehicle dropped past it.

Tubby, standing at the side window, shook his fist at the disturber of the peace of the Solar System.

"We'll fix you yet—you—"

Ameena laughingly pulled him away.

"Is Mars as large as my Venus?" she asked Sir Isaac. "Or your Earth?"

"The diameter of Mars is 4,316 miles," said Sir Isaac. "The Earth is 7,917 and Venus 7,629."

"Only a little guy!" Tubby was contemptuous. "That's the way with them little fellers—Mercury too—always lookin' for a scrap."

Sir Isaac went on:

"Mars revolves around the Sun once in a little less than 687 days. That is the length of his year. His orbital speed is 15 miles per second. He is ahead of the Earth now in his orbit; but the Earth travels forward at the rate of 18½ miles per second. Thus you see, the Earth is overhauling Mars—and when they are both in line with the Sun, that will be opposition. That's their closest point to each other until the Earth comes around again—and that's when the Martians will attack."

Sir Isaac, because of one threatened catastrophe or another, had had so far very little sleep since leaving the Earth two days before. About half past eleven that morning Tubby and Ameena sent him to bed again.

"Don't let me sleep more than two hours at the most," he said anxiously. "There are thousands of Minor Planets in here between Mars and Jupiter."

"Shucks," disclaimed Tubby. "That don't make no difference. Ain't I on guard?"

It was a magnificent chance for sarcasm, but the sterling character of Sir Isaac forbade such weakness. All he said was:

"Our velocity of 28,000,000 miles an hour would be sufficient to carry us from Earth to Venus, or from Venus to Mercury in a little over sixty minutes! I don't want you to forget how fast we are falling now."

With which admonition he retired.

It was a long, tiresome, comparatively uneventful day—at least it would have been, if Tubby had not had Ameena's companionship. She sang to him again; and with his somewhat raucous tenor voice they contrived "inter-planetary duets" as Sir Isaac jocularly called them. When they had tired of music they climbed into the dome to make sure their pursuers had not again come into sight. The overhead sky, out of which they were falling, showed nothing unusual. Mars—well above them now—had dwindled to a small, reddish star; the Earth, Venus and Mercury were indistinguishable among the mass of other glittering worlds.

"Look at the Sun," said Tubby. He pulled Ameena toward him. He had indeed, progressed to where his arm was almost constantly about her, which, since youth and love are the same the Universe over, Ameena accepted as quite reasonable and natural.

"Ain't the Sun gettin' little?" Tubby added.

The orb of day had dwindled to half its apparent size as viewed from Earth. The vehicle too, was growing hourly colder. Ameena shivered a little.

"Come on down," said Tubby solicitously. "We'll have to get the professor to heat the place up more—an' get you dressed warmer." His appreciative glance swept Ameena's dainty figure. "I'll see what I can dig you up—right after lunch. Come on down where it's warmer—let's play cards."

EXPLAINING to the girl the intricacies of the fifty-two different cards of the deck took nearly another hour, after which Tubby's stomach peremptorily informed him that it was time for lunch. He swept up the cards, and with sudden thought gazed anxiously down through the lower window to see if they were about to collide with anything. Jupiter had grown to a marvelously brilliant star; beyond that, everything was as before.

"You go fix up somethin' to eat," he

said to the girl. "I'll call the professor—he's asleep long enough anyway."

Sir Isaac came down shortly, dressed in a warm-looking tweed suit with golf trousers. Glancing at the chronometer, he immediately plunged into an intricate mathematical calculation.

"Our velocity since 9.30 this morning has averaged just 28,302,122 miles an hour," he announced a little later. "My guess was right."

"Good," said Tubby. "Come on into the dinin' room. Lunch is ready."

After lunch Tubby himself dressed more warmly—in a Norfolk jacket golf suit and heavy grey flannel shirt, an outfit that was extremely becoming. He then sent Ameena upstairs, magnanimously offering her anything and everything in the way of apparel she could find. She returned a few moments later, and stood shyly awaiting his approval. She had donned a heavy pair of golf stockings and rubber-soled shoes which miraculously were almost small enough for her. And over her knee-length white dress she was wearing a natty-looking man's overcoat which almost swept the ground. Her hair was now piled on her head, with a huge, red-silk handkerchief bound around it.

Even Sir Isaac glanced up from his figures long enough to admire her appearance. She looked indeed, like a radiantly beautiful little Earth-girl, on her way to the beach for a swim.

"Fine," declared Tubby. "Keep that coat buttoned up an' you'll be nice an' warm."

They were now—it was about 2.30 P. M.—more than half-way in distance from Mercury to Jupiter, Sir Isaac announced.

"Tell us somethin' about Jupiter," said Ameena, sitting down beside Tubby and giving him her little hand to hold. "You said it was a very big Planet."

"Its mean diameter is 87,360 miles," Sir Isaac answered. "Its volume is 1390 times greater than the Earth!"

"Some big planet," Tubby commented.

Sir Isaac added:

"And it makes one revolution around the sun in 4332.5 days. Thus its year is equal to 11 years, 314.9 days on Earth."

"My goodness," said Tubby.

"But Jupiter's day is only about 9 hours and 56 seconds long. That is because it rotates on its axis so very swiftly."

Tubby interjected.

"This here Jupiter's a re-mark-able Planet, ain't it?"

"Go on," said Ameena. "Tell us more."

Sir Isaac seemed embarrassed. "Well to tell you the truth," he said hesitantly, "I don't really know very much about Jupiter. You see I've never really had occasion, up to now, to—"

"Right," interrupted Tubby. He had no wish to be hard on his friend, especially before a girl. "What's the difference? We'll soon be there an' see it for ourselves. . . . When *do* we land, professor?"

Sir Isaac looked worried again.

"At our present velocity I calculate we should enter the Jovian atmosphere about 10.15 P. M. tonight, but—"

"Very good, indeed, professor."

"But I dare not maintain this velocity," Sir Isaac blushed.

"Why not? Ain't we in a hurry?"

"We *are* in a hurry certainly," Sir Isaac conceded. "But, as you know, the more haste the less speed sometimes. We are now in the region of Minor Planets. More than eight hundred of these little worlds have been discovered and listed, even by those inefficient astronomers of Earth. I have never given the subject much attention—except in the case of Hector Servadac—and in *that* story—"

"We ain't seen no Minor Planets yet," Tubby hastily interrupted.

Sir Isaac drew him and the girl to the side window.

"There are a dozen or so," he said simply.

Tubby made them out after a moment—very tiny half-moons gleaming among the stars. They were apparently moving upward as the vehicle fell past them, while all the stars appeared quite motionless.

"Some of these little worlds are only from a few hundred thousand to a million miles away from us," Sir Isaac added. "We could reach them with this velocity in a minute or two! They're all around us now—so you can understand what chances we're taking."

Tubby understood indeed; and when, a little later, he saw through the lower window a gleaming disc come into sight, grow to the size of the Moon, and sweep past them to one side and out of sight above them—all in the space of a minute—he was glad enough to have Sir Isaac reduce his speed. It gave the pursuing Mercurian vehicle a better chance to overtake them,

of course, but even that was the lesser of the two dangers.

The evening was a long one. Tubby and Sir Isaac played cards after dinner, with Ameena an interested spectator. They discussed their Mercurian pursuers a little—the other vehicle had not again appeared. Ameena retired about ten o'clock and Sir Isaac, shortly afterward, lay down at Tubby's feet on the floor of the instrument room.

Tubby faithfully kept watch until two in the morning. Jupiter was now considerably larger than the Moon appears from Earth—a silver disc with broad dark bands on it, and a huge red spot, like a dull red lantern gleaming from its lower hemisphere. The red spot winked and went out shortly after Tubby discovered it.

When Sir Isaac woke up, of his own accord, Tubby, too tired to ask any questions, fell asleep on the floor, wrapped up in a blanket from the vacant bed upstairs. He dreamed he was a railroad train and that Jupiter was flagging him with a red lantern. He wanted to stop, but couldn't. There was a terrible collision. . . .

Tubby opened his eyes to find Sir Isaac shaking him violently.

"All right," he protested, sitting up dizzily. "Lemme alone. What time is it? Ain't we there yet? Where's Ameena? 'What's that red light comin' from?'"

IT WAS just six o'clock. A lurid red glare was shining up through the lower window. The room was frightfully hot! Tubby, as soon as he was fully awake, stared down through the heavy glass pane. The dark surface of Jupiter, over which they were poised, stretched out as far as he could see in every direction. Directly underneath the window, like the huge mouth of a red-hot furnace, yawned a gap in the Jovian atmosphere from which long tongues of flame were licking upward into Space—venomous, scarlet-red tongues thousands of miles in length.

Tubby was awed as well as alarmed. They were dropping directly into the mouth of Hell!

"Don't be frightened," laughed Sir Isaac from behind Tubby's shoulder. "We're two million miles up yet and falling only at the rate of half a million miles an hour. That is the great red spot of Jupiter. I've always wondered just what it was. Those are tongues of flaming hydrogen. It proves

conclusively that Jupiter is more like the Sun than any other Planet. Its surface is not solid on this side, and as you see, it is internally heated to a very considerable degree."

While Tubby gazed, fascinated, Sir Isaac went on enthusiastically:

"Jupiter is partially self-luminous, which I have also always believed. And, because of its internal heat, the surface temperature is easily warm enough to sustain life, even out here so remote from the Sun."

"That looks absolutely *too* hot to live in," Tubby declared, gazing down into the crater of this mammoth volcano.

Sir Isaac laughed again; evidently he was in high spirits at this complete verification of his theories.

"Of course it's too hot on *this* side. I knew that, but I came around here to see the red spot. We had to follow it around, you see, because of the Planet's very rapid axial rotation. The surface, as I said, isn't solid. Nevertheless, since we know that Jupiter is inhabited, however much it would appear *not* to be, there must be at least a small portion of solid surface. We'll go around to the other side again and locate it."

"Like lookin' for land when flyin' over the ocean?" Tubby illustrated.

"Exactly. That is just what it can be compared to."

Tubby rose to his feet.

"Very good, professor. Very good, indeed. You navigate us around, an' I'll go wake up Ameena. She musn't sleep *all* the time. We got to eat."

They passed fairly close to Satellite IV, which revolves around its mother globe at a mean distance of 1,162,000 miles. They were then having breakfast, and during the remainder of the meal Sir Isaac entertained them with a most interesting dissertation on the nine satellites of Jupiter.

They were all three dressed as on the evening before, though Ameena had discarded the overcoat. She resumed it after breakfast, however, for when they had passed around over the other hemisphere of Jupiter, beyond the flames of the "red spot," exposed again to the cold of Interplanetary Space and warmed only by a very small, pale little Sun, the interior of the vehicle rapidly cooled off.

After breakfast, an observation of Jupiter

through the lower window showed only dense, black cloud masses.

"Let's go down, professor," Tubby suggested. "Can't see nothin' up here through them clouds." He added gloatingly:

"I guess we beat them Mercurians in, all right."

They entered the Jovian atmosphere about eight o'clock—at an altitude of 1,400 miles—a depth of air strata that surprised even Sir Isaac. Inky blackness surrounded them for a time. At 110 miles they emerged into daylight. Later all the clouds swept away. The pale Sun shone through the side window, rising over the horizon—for it chanced to be early morning on this portion of the mighty Planet—shortly after dawn of a clear, frosty-looking Jovian day.

"Looks awful chilly out," Tubby remarked dubiously.

"Yes," agreed Sir Isaac. "We would be freezing in here now if it were not for our friction in passing through the atmosphere. I have shut off our heating apparatus. . . . It will be much warmer down below, however. The internal heat of Jupiter warms its lower strata of air."

At an altitude of 25,000 feet they could distinguish quite plainly the Jovian landscape over which they were passing horizontally—a barren land that looked as though it might be thick black water and mud. It seemed to boil very sluggishly in spots. Here and there it appeared firmer—and there were curious vegetable growths as near like two hundred foot mushrooms as anything else Tubby could think of.

The landscape was changing constantly. Now they came over a barren, almost rocky land, with enormous trees like pines and cedars. Half an hour later the forests began occasionally to be dotted with cities—mammoth buildings rising in terraces two thousand feet into the air. . . . Everything seemed built on the same gigantic scale.

They selected, quite at random, one of the largest of the cities, and descended in an open space nearby. It was 9.50 A. M. when they came to rest upon the surface of Jupiter—a flight from Mercury, smallest major planet of the solar system, to Jupiter, the largest, of exactly 34 hours and 5 minutes.

THE AUDIENCE with the Great Mogul of Jupiter—who came riding out of the city with his Wise Men on an enormous animal—like a queer-looking elephant with

broad, very flat feet—took place about 12 o'clock noon Earth Eastern time, though it was by then late afternoon of the Jovian day.

It may seem remarkable that so great a dignitary would go to his visitors rather than bidding them come to him. The answer, however, is obvious to any thinking student. Tubby and Sir Isaac had flatly refused to allow themselves to be carried; and since gravity on the surface of Jupiter is more than $2\frac{1}{2}$ times that of the Earth, they could hardly stand on their feet, much less walk!

The Great Mogul was a towering giant some fifteen feet tall, with his Counsellors in proportion. A robe of richly-colored cloth fell in folds to his feet. There were ropes of enormous gems about his neck—that is to say they might have been considered gems, though they looked more like little gargoyles moulded out of red and green putty and his braided white beard hung down his chest to his waist.

The audience was held in front of the vehicle, with Tubby, Sir Isaac and Ameena sitting on the floor in its doorway while a circle of guards kept back the crowd of giants that had collected. Within this circle the Great Mogul and his four Wisest Men stood.

Tubby felt as though he weighed over four hundred pounds—which indeed was the case; and his companions in proportion.

"It's just like being a Lilliputian in Gulliver's Travels," he whispered to Sir Isaac as the Great Mogul knelt down to see him more closely. Tubby was struggling for breath; a great weight seemed compressing his chest; his head was ringing; his eardrums felt as though something were pushing them inward—all, as Sir Isaac had explained an hour before, because of the excessive pressure of the Jovian atmosphere. It was most disagreeable. And especially it was unpleasant to be nailed down by one's own weight—to be forced to interview the greatest monarch of the Solar System in an undignified sitting posture on one's own doorstep!

Sir Isaac beamed when Tubby made his remark about the Lilliputians. "Ah, so you have read my 'Gulliver's Travels'? There was a book! If I do say it myself, my scientific conceptions in that were. . . ."

"Sh!" Tubby whispered. "He's talkin' to us!"

Tubby noticed suddenly that the Great Mogul and all his followers had very big, flat feet—shaped like snow-shoes—as though they were meant for walking on very soft surfaces. They——

The Great Mogul was talking in a huge, roaring voice. The words were strange, unintelligible.

Sir Isaac smiled with embarrassment; and shook his head. "Too bad," he whispered to Tubby. "I ought to know their language—but I don't. You see I've never written much about Jupiter. I——"

The little Jovian stepped forward—a stoop-shouldered, weakened individual no more than nine or ten feet tall. By his face he might have been two or three hundred years old. He looked more like a giant mummy than a man.

"I speak your Earth-language," he said. "All of them—the languages of the Solar System are my study."

Tubby felt impressed. He whispered to Sir Isaac:

"Looks like he'd been studyin' too much, don't he? Mean lookin' guy, huh, perfessor?"

The Interpreter added:

"His Supreme Highness demands that you explain your mission."

Sir Isaac did so, respectfully but eloquently outlining the nature of the disaster that threatened the Earth from Mars and Mercury, and ending by pleading most earnestly that the great Jovians lend their aid to the Earth to prevent so murderous an attack.

The Interpreter turned to his master and translated. When he had finished, the Great Mogul laughed!

The three voyagers knew then, before an answering word was spoken, that their mission to Jupiter was a failure. They had made their plea—the lives of all the teeming millions of people of the Earth were at stake—and the Great Mogul laughed!

"That dirty, mean——" Tubby would have broken into open vilification, but Sir Isaac stopped him.

The Great Mogul was now speaking to his Interpreter.

"His Supreme Highness the Great Mogul is extremely sorry," said the Interpreter a moment later.

"Yes, he looks it." This from Tubby.

The Interpreter's face darkened as he repeated this sarcasm to his master. A torrent of passionate anger swept over the Great Mogul's face. The Interpreter lis-

tioned to his words a moment; then, in translating them his anger made him lapse into an Earth-colloquialism more expressive than elegant.

"His Supreme Highness says all you little worlds can shoot yourselves to Hell for all He cares," said the Interpreter.

Tubby tried belligerently to rise to his feet, but his weight made the effort a lamentable failure.

"We're sorry," Sir Isaac shouted at once. "Tell His Highness we meant no offense . . . These Jovians are most hot-tempered people it would seem." He added this last to Ameena in an undertone.

"Ask him about Saturn, Uranus and Neptune," the quick-witted girl said immediately.

Sir Isaac put the question as humbly and placatingly as possible.

"They are uninhabited," said the Interpreter sourly.

His Supreme Highness was making ready to depart, apparently without further interest in the proceedings. Tubby had almost managed to climb to his feet, but at last he gave it up and sank back again.

"Come on," he panted. "Let's get—out of this . . . This ain't no place for us—we're wastin'—time again."

Without further ceremony, like little disappearing manikins in a mechanical box, the three voyagers pulled themselves back out of the doorway of their vehicle and closed the door after them. Sir Isaac rolled across the floor of the instrument room—the easiest mode of locomotion—and hoisted himself into reach of the keyboard.

An instant later the vehicle, freed from the tremendous gravitational pull of Jupiter, flew like a rifle bullet into Space.

CHAPTER VII

A GAIN, after a voyage of some 450,000,000 miles, the would-be savants of their own world were doomed to disappointment! When they had again safely traversed the Jovian atmosphere, avoided Satellites II and IV with one of which they very nearly collided and were again launched into space, headed they cared not whither for the moment, the adventurers sat down to discuss this terrible misfortune.

As might be expected, the discussion yielded nothing. The miserable Jovian af-

fair was most discouraging, though Tubby took a measure of satisfaction in it.

"I'm sorry for them Mercurians when they get here," he declared, with a sudden grin at the thought. "I wouldn't wish them no worse luck than askin' a favor of that Mogul guy."

"But what will we do?" Ameena asked. The brave little girl was extremely agitated as the possibility—even probability—of their final failure forced itself upon her. "Saturn, Uranus and Neptune are uninhabited! That leaves us nowhere else to go—and we must have help. We must!"

"I wouldn't bet a plugged nickel on anything that guy said about them other Planets," Tubby declared doggedly. "I say—let's see for ourselves. It ain't so much of a trip, is it?" Tubby, with Ameena's hand to hold most of the time, was not finding the voyage unpleasant in the least.

Ameena flashed him a look of admiration as he made this sturdy suggestion. Sir Isaac pondered.

"We are now about 483,000,000 miles from the Sun," he said thoughtfully. "Saturn's mean distance is 887,098,000 miles; Uranus is 1,784,732,000 miles, and Neptune is 2,796,328,000 miles from the Sun!"

Tubby was slightly staggered; but he tried not to show it.

"That ain't so far," he declared. "Maybe we could speed it up a little out here."

Sir Isaac, as the idea began taking hold of him, was making a swift mathematical calculation.

"We might go past each of them without stopping to land if they are not habitable," he said finally. "Owing to their present positions it would be a trip of about 3,281,000,000 miles from here."

He added:

"That's nearly a third farther than a direct route to Neptune owing to Saturn and Uranus being out of line." He showed Tubby and Ameena his chart again. "However, we ought to be able——"

"Sure thing," Tubby interrupted. "Let's get goin'. We're always wastin' so much time."

They were comparatively uneventful, the days that followed—uneventful that is, so far as astronomical occurrences were concerned. To Tubby, however, they were days of never-flagging interest. Sir Isaac, with his charts and his mathematics, concerned himself almost exclusively with navigating the vehicle. He had started on a rapidly-

growing manuscript also—a sequel to the "War of the Worlds," he said; and except for a brief game of poker in the evening, he left his fellow-travelers entirely to their own devices.

Tubby and Ameena cooked the meals together, and washed the dishes; and, for relaxation sang their *Inter-planetary duets*. For the rest, Tubby held her little hand, and with his arm around her awed into silence, they watched together the never-ending vista of glorious stars toward which the vehicle was falling with constantly accelerating velocity.

Now that their voyage was extended into such gigantic distances, Sir Isaac, more than ever before, felt the need of haste. Only fifty-five days and some six hours from the time they left Jupiter remained before the fatal opposition of Mars with the Earth. Much could be accomplished in fifty-five days; but still, as Tubby lugubriously remarked, at the rate they were accomplishing it, fifty-five days was a very little time. Wherefore Sir Isaac, setting his determined jaw firmly, buried the vehicle with prodigious velocity onward.

The danger of collision, which had so perturbed Sir Isaac in the region of Minor Planets between Mars and Jupiter was now greatly lessened. They had plenty of room now—for Asteroids, Meteors, even Comets were seldom sighted. It was a run of some 460,000,000 miles to Saturn, through a region of space comparatively deserted.

At their former maximum velocity of twenty-eight million miles an hour, which Sir Isaac now maintained as an average, sixteen hours after leaving Jupiter they were approaching Saturn. It was then half-past four the following morning. Sir Isaac had slept the afternoon previous and was on watch. He awakened Tubby; and Tubby went immediately upstairs and called Ameena. Shortly afterward all three were crouched over the instrument room floor window, peering down at the great Ringed Planet above which they were seemingly poised some twelve million miles away. Sir Isaac had decreased their speed materially so that they might make observations without approaching too close.

Saturn, a globe almost as large as Jupiter, and with its marvelous system of rings very much larger, at this proximity was a magnificent sight. The globe itself—a gigantic silver disc occupying half the firmament visible through the window—had

broad bands of darkened area upon it similar to those the voyagers had observed on Jupiter. But those rings! Tubby and Ameena were amazed into silence; even Sir Isaac was awed by their splendor.

As viewed from the vehicle's present position, the concentric rings—the inner one somewhat darker—were opened up to an angle of nearly thirty degrees—a glistening, gleaming silver band, like the broad brim of a crownless hat encircling the Planet—a silver brim more than 37,000 miles broad, with a total diameter, including the sphere it encircled, of nearly 167,000 miles! Hanging there in space below them, the Planet, its rings and its several tiny moons bathed the interior of the instrument room with silver fire. It was the most glorious, most stupendous sight that human eyes had ever looked upon!

"Let us go down close," said Sir Isaac quietly.

A little later they could make out the composition of the rings with perfect clarity. Billions upon billions of tiny fragments of star-dust, each of them infinitesimal satellites, each of them like tiny moons reflecting the sunlight, whirled in their respective orbits about the mother Planet!

"The wonder of it!" Sir Isaac murmured. "A billion billion, and yet countless other billions of satellites—all on one identical plane, each separate, each holding its place and following its own circular orbit!"

Through the cloud-masses occasionally the onlookers could distinguish the surface of the Planet itself—could observe that it also was in motion, moving in gigantic whirlpools.

"It is undoubtedly entirely liquid or gaseous," said Sir Isaac, "of a density very much less than water. We shall find no inhabitants here."

"No, I s'pose not," Tubby agreed. He seemed, for once, reluctant to proceed with the journey. He sat with his arm tightly encircling Ameena's waist—as who would not with such a girl and such a sight before one? "I guess we got to get on our way," he added with a sigh.

Sir Isaac altered their course; and in an hour more they were well on their way to Uranus, with Saturn and his rings high in the firmament above them.

It was a run of about eleven hundred million miles from Saturn to Uranus. Sir Isaac had already maintained an average velocity of twenty-eight million miles an

hour for some hours. He now determined to better it. Beyond Saturn, he was convinced, there was still less chance of encountering any derelicts. And, with each passing hour—each passing Planet from which they hoped to obtain help for their own threatened world—the panic in their hearts grew.

It was Tubby who voiced it most strongly.

"In fifty-four days from today the Earth goes out of business," he remarked dolefully, from a deep, reflective silence into which all three had fallen.

"Fifty-four days and twelve hours," corrected Sir Isaac. "If we don't succeed."

"We shall succeed," declared Ameena. "We must never think but that we shall."

Thus, always, woman's stronger hope and courage never flags.

The run to Uranus occupied some 28 hours—an average velocity of a trifle over 39,000,000 miles an hour. It was about noon of the following day when, after no particularly unusual incidents—Sir Isaac again slowed down for them to make observations.

It had grown colder steadily; the vehicle's heating plant was in active operation. The Sun had dwindled to a little blazing point among the stars.

All that morning the travelers had sat looking downward, watching Uranus grow from a brilliant star to a little moon; from moon to glowing silver-green disc. And now, at noon when they slackened their fall, the seventh Planet of the Solar System lay beneath them.

After Saturn, the sight was disappointing. Uranus, 32,879 miles in diameter, lay perfectly barren. Its axial motion, observed closely over a period of time, was distinguishable—like the minute hand of a clock that creeps slowly forward. Sir Isaac believed it to be of some six or eight hours duration.

Heavy banks of cloud masses obscured the Planet's surface; Sir Isaac had not believed Uranus would prove to have an atmosphere—but it had, and a very dense one obviously. But the surface of the Planet itself, what little they occasionally could see of it, was obviously liquid.

NO INHABITANTS here," said Sir Isaac. Quite evidently he was tremendously disappointed, for he knew that the average density of Uranus was not much

more than that of Jupiter, and he had hoped that in this instance the Jovian interpreter had been lying.

"No inhabitants here," Tubby echoed sadly. "Well, let's get on our way."

Between the orbits of Uranus and Neptune there lies a mean distance of 1,011,796,000 miles—that is to say, something over a thousand million miles. Neptune now, however, was unfortunately very much farther along in its orbit, so that the oblique course necessary to reach this latter Planet lengthened the distance to nearly eighteen hundred million miles. Sir Isaac, after a very abstruse calculation, announced the exact mileage to be seventeen hundred and ten million and twenty-six.

Tubby was getting used to these gigantic figures, which as anyone can realize, are only relative. Sir Isaac pointed this out clearly.

"On earth, in a railroad train," he said, "if you were going at the rate of fifty miles an hour and had a journey of 1710 miles to make, it would not be very confusing to fathom the figures, would it? Or to calculate how long it would take you to make the run? That is exactly comparable to this run we have before us now, from Uranus to Neptune. We have about 1710 million miles to go, and I propose to average about 30 million miles an hour."

Here Sir Isaac fell back upon one of his favorite topics. "All distances are relative to other distances. A mile to a snail is a long trip, but an airplane makes it in two or three dozen seconds. There is no such thing as absolute distance—or absolute motion, or time or size. Everything is relative to something else. Twenty-four hours is a very little time in the life of an elephant—but it is more than a lifetime to many insects. Our trip from here to Neptune is not more than an inch in all the countless miles of space... But I'll tell you more about that some other time."

"Right," said Tubby, considerably relieved. "Just now we got to eat. Ameena's got lunch all ready."

The flight to Neptune occupied just thirty hours—an average of 37 million miles an hour. Sir Isaac was intensely pleased, though as he admitted to Tubby, the maximum velocity of the vehicle had never yet been tested.

Tubby and Ameena were also enthusiastic.

"Wonder what become of them Mer-

cerians who was after us?" Tubby speculated. "Swell chance of them gettin' way out here."

"They must have stopped at Jupiter," said Ameena. "We were gone then—they could not tell where."

This, obviously, was logical. At all events, the Mercarian vehicle was now the least of their worries. Neptune lay beneath them. Would they secure, on this far outpost of the Solar System, the help they needed? Fervently they prayed so, for it seemed their last chance.

It was just 6 P. M., on the day following their departure from the vicinity of Uranus, when Sir Isaac held the vehicle poised above the surface of Neptune. The Planet, very slightly smaller than Uranus, lay completely enveloped in its dense atmospheric envelope.

"We got to go down," said Tubby frowning. "Can't see nothin' from way up here."

The descent through Neptune's atmosphere was pleasurable, for the friction warmed the vehicle once more to comfortable temperature. At an altitude of some fifteen thousand feet they emerged from the dense cloud-banks into Neptunian daylight. And what a dim, miserable daylight it was! And below, what a bleak, dreary sight met their disappointed gaze! With sinking hearts—their last hope gone—they stared downward. Neptune's surface—flat, unmarked by a single distinguishing physical conformation—might have been the surface of a polar sea! In all directions, to the circular rim of the raised horizon, stretched a level surface of grey-white snow, dirty-looking in the twilight which was Neptune's day. But whether land lay beneath, or merely some frozen liquid, could not be told.

There was not a sign of life—nothing but bleak desolation. It was an amazing sight—an old world seemingly, when everything in the logic of Sir Isaac's scientific mind had led him to anticipate a new one—a world of heat, of liquid or gas turbulent from its own internal fire.

Sir Isaac muttered to himself. Looking upward through the side window with Tubby, they saw the Sun through a rift in the clouds—a tiny pencil-point of light in the dull, reddish-blue day—a dreary, remote Sun, hopelessly impotent to light or to warm this far-away offspring.

Tubby's face was solemn as he turned to his friend.

"Ain't no use goin' down no farther. That's our finish—that puts our Earth out of business."

Silently the vehicle, with its three saddened, frightened occupants, ascended through the Neptunian atmosphere again into space.

"Well," said Tubby finally. "Now what? That's the end, ain't it?"

Again it was Ameena who first recovered her courage. Her lips were compressed; her beautiful, dark eyes blazed with determination.

"It is not the end, my friends! To such men as you the end never comes before defeat!"

She pointed to the Stars blazing outside the window—the band of "Milky Way," a myriad stars brighter now from this outer edge of the Solar System—and added:

"There are other worlds—countless other worlds. Let us go to them! With all the haste we can make—forgetting danger to ourselves—let us hurry. Here at home, in our own little Solar System, we have been rebuffed. But somewhere in this Universe there must be humans who are unselfish—who though without hope of reward, will will not suffer their own kind to go down into disaster and death!"

Her enthusiasm was contagious.

"Come on!" shouted Tubby. "Let's get goin'! There's a big star—let's go to that one!"

Sir Isaac thumped his fist on the table.

"We will!" he exclaimed. "I shall attain a velocity never before even imagined! We must—we shall find help for our Earth!"

A few moments later, sweeping circularly around Neptune, the undaunted adventurers left the Solar System behind them and launched themselves boldly out into the uncharted realms of Inter-stellar Space!

CHAPTER VIII

"**WE** MUST not rush into this thing thoughtlessly," Sir Isaac declared, when the first flush of their enthusiasm was passed and practicality began to creep in. "We must plan—calculate. Our time is limited. We only have—"

"Fifty-two days exact," Tubby finished. "How far we got to go? Ain't we gone a good ways already?"

Sir Isaac had made several brisk compa-

tations a few moments before. Neptune, with the entire Solar System behind it, already hung far above them. They were falling downward, apparently toward a very bright Star which gleamed amid a myriad of its fellows in the lower firmament.

"We have relatively a very great distance to go," said Sir Isaac, answering Tubby's question. "We are already on our course to the nearest of all the Stars—and fortunately we happen to be at that extremity of the Solar System nearest to it. He pointed to the lower window.

"Very good," approved Tubby as usual. "The closest Star. Very good. What's its name an' how far away are we? An' say, what's a Star anyway? We been dealin' in Planets so long—"

Sir Isaac smiled. "To answer your last question first, I shall have to give you a brief explanation of the nature of the entire Universe."

Anticipating a somewhat lengthy dissertation of the sort Sir Isaac seemed to delight in, Ameena settled herself beside Tubby and gave him her hand to hold.

"Go on, Sir Isaac, please do," she pleaded.

"Go ahead—shoot!" said Tubby.

Thus encouraged, Sir Isaac began:

"The region we call Space is a limited area whose boundaries I shall explain some other time."

Tubby and Ameena were anxious to know.

Sir Isaac frowned slightly. "Oh well—that is immaterial. In that scientific narrative I dealt with infinite smallness, and now we are dealing with infinite largeness. The theory is the same. . . . However, this region we call Space is devoid of air. It is not, of course, a vacuum, but is completely filled by the ether."

"What's that?" demanded Tubby.

"The ether, my friends, is an agglomeration of imponderable atoms, which, relatively to their small dimensions, are as far removed from each other as are the Celestial bodies in Space. It is these atoms which, by their vibratory motion, produce both light and heat in the Universe. . . . That's my own definition. I hope you like it?"

"It's—it's beautiful," declared Ameena.

"Thank you," replied Sir Isaac, smiling graciously. "I think it is rather neat. I've used it frequently. Though lately, these foolish modern scientists of Earth are be-

ginning to dispute me. . . . Well, to proceed. In this region of Space, billions upon billions of Celestial bodies are whirling. They all obey recognized laws of Celestial mechanics—all are acted upon by different balancing forces. . . . I shall not weary you with that."

"No," said Tubby. "We'll pass that up. Go on."

"These Celestial bodies range in size from the most gigantic blazing Suns, millions of times in volume of our own Sun of the Solar System, down to the very minutest fragment—which is nothing more or less than an atom of the ether itself!

"We call these Celestial bodies by different names. A Star, for instance, refers to luminous bodies. Our own Sun is one of them. Planets are reflecting, or partially self-luminous bodies revolving around a central Sun. You already understand what Satellites are. Then there are Asteroids, which are merely Planetoids—smaller Planets. And there are Comets, and Meteors, and—"

"Never mind all them," Tubby interrupted hastily. He squeezed Ameena's hand consolingly as Sir Isaac plunged on:

"Therefore, you understand, we live on one of the Planets—I beg your pardon, Ameena—on two of the Planets of the Solar System—the Earth and Venus. Our Sun, with all its Planets, forms only *one* System of an infinite number. Each of those Stars—" He waved his hand again toward the window—"Each of those Stars very probably has revolving about it a system of worlds much greater than our own 'Solar System'."

"My goodness," Tubby commented. "This here Universe is a big place, ain't it? We only got started, so far."

The memory of those fifty-two days of grace which were all that remained to them, struck Tubby forcibly. He added anxiously:

"How soon do we get to this first Star, professor?"

Sir Isaac referred to a memorandum "The nearest Star to the Solar System is Alpha Centauri," he answered. "The Astronomers of Earth recently claim to have found one slightly nearer, but I do not recognize it. That is Alpha Centauri we are heading for—a splendid binary of the First Magnitude, with a parallax of 0.75" whose components revolve in 81 years. I mean—he added apologetically, "it is really two Stars several hundred million miles apart,

revolving around each other. It is drifting through Space with a velocity of some sixty miles a second."

Tubby lifted his eyebrows; Sir Isaac continued hastily:

"Every Star is moving—drifting, I call it—as though they were in gigantic currents circulating about—I don't know just whither or why. Our own Sun, for instance, with all its Planets, is drifting—floating toward some of the Stars and away from others—at the rate of many miles a second, but always holding its mass of Planets intact."

Tubby turned to the girl beside him. "Kind of complicated, ain't it, Amerna?" Then to Sir Isaac:

"How far is this closest Star we're heading for? I ask you 'at, an' you...."

"I was getting to that. But if you *must* know at once...." Sir Isaac spoke with some asperity. "If you insist, I'll tell you that Alpha Centauri is a trifle less than 25,000,000,000,000 miles from here!"

Tubby and the girl stared blankly as Sir Isaac stated this astounding figure.

"You see? I knew you would not understand me. What I wanted to explain first, was that in dealing with these larger figures, to save confusion we generally use a larger unit than the mile. The best one is the Light-year. It is the distance light travels in a year."

"How far?" Tubby asked, with rapidly recovered poise.

LIGHT travels about 186,000 miles a second," said Sir Isaac. "Multiply that up to a year and divide it into 25,000,000,000,000 and you get 4.35. A child could do that by simple arithmetic. Thus you find that Alpha Centauri is distant 4.35 Light-years."

This latter figure was considerably less awe-inspiring. Tubby seized it eagerly.

"Only four Light-years. That ain't so far."

"No," said Sir Isaac, smiling with returned good humor. "Comparatively speaking, of course, it isn't far. All distance is relative. If you can travel fast enough, 4.35 Light-years, especially compared to the many hundred Light-years which separate some of the Stars, is relatively quite near.... Now about our own velocity...."

It was, in truth, the problem of attaining a sufficiently great velocity to cope with these greater distances that had worried Sir

Isaac from the moment they decided to launch out into Inter-Stellar Space. Within the comparatively narrow confines of the Solar System—menaced by Asteroids and Meteors—a great velocity was neither necessary nor desirable. But now—in the outer realms—it was both.

Sir Isaac, in spite of his bombastic statement to Tubby as they left the Earth, had never really anticipated a prolongation of the voyage beyond Neptune. Nevertheless he had always believed that the vehicle's velocity, theoretically, was illimitable. Several factors contributed to this conclusion. It is one of the laws of motion, inertia to be exact, that a body once in motion and not acted upon by any force, will continue forever in motion at exactly its original rate. Thus, whatever force was applied to the vehicle must *accelerate* its rate of speed indefinitely.

The entire Solar System now lay above them, and thus the combined repellent force of all its Planets and its Sun could be used. This, with the attractive force of all the countless gigantic Stars that lay below, Sir Isaac was confident would cause them to fall into the void of Space with tremendous velocity—a velocity that had no limit except the time allowed for acceleration.

Haste was needed, and now, for the first time since leaving the Earth, Sir Isaac used almost all the total force at his command. They had left the vicinity of Neptune about 8 P. M. At midnight, just when the sleepy Amerna was about to retire, Sir Isaac looked up from the most complicated calculation he had so far made.

"Our velocity is now approaching two hundred thousand miles a second," he announced triumphantly.

"Thousand?" Tubby exclaimed in dismay. "We was goin' in millions this afternoon!"

"I said a *second*," Sir Isaac returned. "We did attain—at one short period last night—about a hundred million miles an hour. But I cut it down at once. This is per second—not per hour."

"Oh," said Tubby with relief. "How much is that an hour?"

"About seven hundred and twenty million—that is to say, seven times our former maximum."

This was joyful news indeed; but Sir Isaac's next words dispelled the joy completely.

"At this rate," he added, "we should

reach Alpha Centauri in about four years!"

And in fifty-two days Mars would destroy the Earth unless they were back there to prevent it!

"But—but then—" Tubby protested. Sir Isaac's quiet smile stopped him.

"You need not worry over that," he said. "There are many forces acting upon us which you do not understand. The acceleration of a falling body is an astounding ratio—especially when it has an additional repellent force above it....I've told you that before. Wait until tomorrow—then we shall see."

There followed a somewhat lengthy silence.

"Say, professor," Tubby began finally, "ain't this kind of re-ma-rk-a-ble—this extra speedy travelin'?"

Sir Isaac looked up from his mathematics. "My dear fellow, I *do* suppose these Astronomical figures confuse you. I've already tried to explain—"

"No—I mean, *as* bein' able to go so fast." Sir Isaac laid aside his pencil, and frowned. "I see nothing extraordinary in it. Your mind is still in its Earth-rut. You must get out of *that* line of thinking."

"I will," Tubby declared humbly. "Only tell me how to."

Sir Isaac's good nature returned, promptly as usual. He laughed.

"You must understand that on Earth you have always been dealing—personally, I mean, with mileage the longest distance of which is the circumference of the Earth—25,000 miles. All your life you have been a little ant, chained down by gravity. Naturally, for you, motion has had a very narrow meaning. Your own motion, in relation to the ground beneath you, is all your mind daily recognized. That, for you, was the standard of motion.

"But, my dear friend, that is not really motion at all. You were like an ant, crawling around the narrow limits of its little world. How can you expect an ant to understand, or to fathom the velocity of an airplane, or a rifle bullet, which covers in a fraction of a second, a space—a distance—equal to the entire known world of the ant?"

Sir Isaac was gradually warming up.

"You call *that* motion. On the other hand, though you did not know it, perhaps, both you and the ant have always been moving with great rapidity. For instance, the rotation of the Earth on its axis, if you

happened to be on the Equator, would carry you around a circle of 24,000 miles in one day—every day. That is a thousand miles an hour. Added to that, the Earth also moves around in its orbit some 66,000 miles an hour. Still more than that, the Sun drags the Earth along at about 36,000 miles an hour. This motion of the Sun can only be calculated by its relation to the other Stars. And, so far as I know, the whole Universe may be hurtling through Space a thousand times that fast. In fact, I think it is. And still more than *that* probably Space itself is moving—a million times faster than everything else....But that you cannot understand yet....I'll explain *that* to you later."

"Tell me more," Tubby murmured desperately.

"Well," said Sir Isaac, "in Space, you see, all Earthly ideas of motion must be reconstructed. We are now a Celestial body ourselves—obeying all the laws of Celestial Mechanics—a little world all our own—a world of three inhabitants."

It was an interesting thought; it aroused in Tubby a sudden patriotism for the vehicle and its welfare.

Sir Isaac went on quietly and earnestly: "Some of the Stars are drifting at the rate of 250 miles a second. *Drifting*—you understand. But we are not drifting, we are *falling*—pulled down by attraction from below and pushed down by repulsion from above. Is it any wonder then—after falling freely for millions of miles, and with such a constant, tremendous impulse—that we should attain an enormous velocity?"

Both Tubby and Ameena admitted the reasonableness of this. Motion, as Sir Isaac so clearly pointed out, depended entirely upon the motion of something else with which you compared it.

"I guess it ain't so wonderful, professor?" Tubby said finally. "But you got to get used to thinkin' about it."

Sir Isaac smiled, and turned to the tired girl. "Hain't you better run along to bed, Ameena?"

Tubby escorted her to the foot of the stairs. As he parted with her for the night, she said softly:

"Do not worry, Tubby dear. We shall succeed—I know it."

With a radiant smile she kissed him goodnight and darted up the stairs. For an hour thereafter Sir Isaac's figures fell upon deaf ears; the memory of Ameena's bew-

tiful face and the tenderness in her voice—attributes that had all the inherited intensity of hundreds of Venus-women ancestors behind them—absorbed Tubby's entire consciousness.

During the night, Tubby and Sir Isaac alternated keeping watch, though as usual Tubby did most of the sleeping. Poor Sir Isaac was getting thinner than ever; but his wonderful courage and vitality held him up. He was almost always either working with his calculations, or using some of the many scientific instruments with which the room was equipped; and, for diversion, writing his manuscript, which hourly grew in bulk.

HIS WAS engaged in this latter occupation the following morning after breakfast, when Ameena, coming in from washing the breakfast dishes, timidly asked him what he was writing. He looked up to her with tired eyes as she and Tubby, with arms around each other, stood beside him.

"I am writing a scientific narrative which I think I shall call 'Around the Universe,'" he said quietly.

Ameena clapped her hands. "Oh, isn't that fine? All about our trip! Will you publish it on your Earth? Everyone will love to read about all these wonderful things, won't they?"

Sir Isaac's smile was very gentle, slightly cynical.

"My dear child," he said, "you do not understand human nature. People may condescend to read what we have done, but do you think they will *believe* it?"

"But, of course, they *want*," the girl cried. "Is it not actually happening to us?"

Sir Isaac sighed. "It is, most certainly. But people are so skeptical. They do not even believe that jupiter is habitable. They will think I made it all up—treat it as a joke. All my scientific data—my personal observations—the most wonderful Astronomical—"

"Let 'em go to blazes," Tubby put in fiercely. "We'll give it to Venus. If them Earth-people ain't got no more sense than . . ."

"But first we must save the Earth-people, or those terrible Martians will destroy them," reminded Ameena.

Tubby sobered. "That's so." Another thought struck him. "We'll save all them Earth-people from gettin' murdered—an' then they'll laugh at us for tellin' them how

we did it! That's gratitude for you! That's—"

Ameena kissed him gently. "Never mind, Tubby. We shall do what we can—for the sake of humanity—without hope of reward."

Sir Isaac, practical as always, remarked somewhat cynically:

"To accomplish that, we must have help. We must find some other humans in this Universe as unselfish as ourselves. Can we do that? I doubt it."

"You are extreme, Sir Isaac," Ameena said. "On your Earth, when you have had war, have not Nations aided each other?"

"Yes," he answered. "But only for their own interest—for their own defense. I cannot recall a single instance of real unselfishness. Yes, I think there were two. A few years ago there was a little Nation—"

"A little Nation!" Tubby exclaimed. "Say, maybe that's the answer! Maybe we was wrong to pass up all them little Planets between Mars and Jupiter!"

"I thought of that," Sir Isaac responded. "A small Nation or a world, I think, is more likely to be completely unselfish. I don't know why it should be so—but it seems to be. There are Ceres, Juno, Pallas—many Minor Planets—and we ignored them all." He shrugged. "You see, a little world, however willing, would be powerless to help us materially anyway—even if they wanted to. That is why I did not consider them."

The train of thought which this conversation brought to Sir Isaac worried him afterward very considerably. In drawing an analogy between individual Nations and Planets, it became perfectly clear that to ask aid of any Nation is a very different matter from going to another world. Nations on the same Planet have infinitely diversified interests interwoven. War comes. However unselfish a Nation may appear—may in fact really and sincerely in its heart feel itself to be—it cannot by the very nature of things, be wholly detached. But go to another Planet. The detachment is complete. Then—and then only—can you put it to the real test of altruism.

Thus the identical attitudes of the people of the Light Country of Mercury, and of Venus, and Jupiter, while they cannot be condoned, at least can be understood. And following this train of thought, as Sir Isaac did that morning while he sat star-

ing with unseeing eyes at his neglected manuscript, an additionally disturbing conclusion was inevitable.

All the Planets the voyagers had so far importuned, belonged to the Solar System. To some extent, therefore, their theoretical interests were mutual. And, if Mercury, Venus and Jupiter were willing to stand by and see the War Lords of Mars overrun the Earth, how much more likely were worlds far outside the Solar System to adopt a similar attitude? Sir Isaac pondered this, until at last he began to realize how inevitable would be their rebuff, no matter where in the Universe they went.

Noon came. Sir Isaac sat moodily, then went back to the instrument room and his gloomy reverie. Ameena put the kitchen in order with Tubby's help, after which the two young people sat in the store-room, Ameena strumming her lyre and Tubby singing with enthusiastic abandon.

It finally became too much for Sir Isaac's overwrought nerves.

"Won't you *please stop*?" he called querulously. "I can't stand that infernal noise when I'm thinking."

They stopped obediently; and a moment later joined Sir Isaac.

"How we makin' out, professor?" Tubby asked timidly. "We're sorry we disturbed you—this here house is so awful quiet."

Sir Isaac was never one to hold rancor.

"**WE** ARE doing very nicely. Our per second velocity now is approximately 43 million miles. At this rate we would reach Alpha Centauri in about six days. I shall, however, do much better than that—our rate of acceleration is quite satisfactory."

But Sir Isaac only shook his head and went back to his reverie.

It was a futile thing—Sir Isaac smiled cynically to himself at the thought of it. The Stars themselves would not be inhabited since they were blazing Suns. Hope only remained with their individual Planets; and to locate these Planets and land upon them would consume much more time than the meager 51 days of grace that were left.

A very real problem of Celestial Mechanics showed Sir Isaac the mathematical impossibility of landing upon more than two or three additional Planets at the most, in such a time. The vehicle, during these many hours that Sir Isaac had remained lost

in thought, had accelerated to a velocity of some two hundred million miles a second—enough to take it far beyond Alpha Centauri in a very few days—especially since the acceleration was constantly progressing. But more than twenty-four hours had been consumed in attaining this velocity; and to check it entirely, under similar conditions would require an equal length of time. But suppose Alpha Centauri had no Planets! Or suppose the Planets were not inhabited? To go to the next nearest Star would require many days more—a still higher velocity—a still greater loss of time in starting and stopping. And then the actual time necessary to land upon a Planet—the slow descent through its atmosphere—the ascent, and hours afterward proceeding at a snail's pace such as they had used within the Solar System! No, it was impossible. A year would be required to make any extended exploration—a year at the very least.

"I will figure it out," he muttered grimly. "The most delicate, abstruse mathematical problem ever attempted! But it can be solved—and I will—I *must*—solve it."

CHAPTER IX

THE CAR passed between the component stars of Alpha Centauri during the early afternoon of the following day. The two gigantic blazing suns were four times our own sun in apparent diameter. Their light was intolerable to the naked eye. Even with the shades of the side windows drawn, the interior of the vehicle was disagreeably bright.

The heat was tremendous—almost stifling. All that morning the temperature had been rising, until, at lunch time, the two men again appeared in their white flannels, and Ameena was back to her charming native costume.

During the morning the two stars that compose Alpha Centauri had visibly separated, and Sir Isaac laid his course between them—a thing that was possible only because the vehicle's tremendous velocity precluded even these gigantic masses from drawing it aside and into them.

The actual passage between the stars was very brief, fortunately, or the voyagers would have perished in the intolerable heat. Sir Isaac estimated the stars to be some 3,600,000,000 miles apart. He professed ignorance as to what figure the earthly as-

tronomers had set, and admitted his estimate probably was greatly in error since he had nothing to judge it by save the stars' apparent flight upward past the side windows. It was indeed, only a few seconds before they were above the vehicle and visually again drawing together.

When it was over, Sir Isaac, trembling at the keyboard, turned his white face to his companions and smiled weakly.

"I should not have tried that," he said. "It was too dangerous, attempting to pass through that little space. How I ever managed it——"

He broke off, adding:

"Well, we're past now, at all events. I did not want to slow down—but suppose—just suppose we had run too close to one of those stars—suppose we had collided with one of Alpha Centauri's planets?"

"Was there any planets?" asked Tubby. "I didn't see none."

"Neither did I," Sir Isaac confessed. "I did not see anything. There might have been—I do not know." He took a swallow of water from the carafe on the table, lighted a cigarette—he was smoking incessantly—and went back to the mathematics in which he was now constantly engaged.

Tubby watched him timidly for a moment. Then, encouraged by a glance from Ameena, he said, hesitatingly:

"Where we goin' next, professor?"

Sir Isaac looked up, frowning. "Eh? What's that?"

"I said, where we goin' next? You said this mornin' we wouldn't stop at Alpha Centauri, but you forgot to tell us why."

Sir Isaac, still working on his plans, had made a brusque statement to that effect. He had promptly immersed himself in his mathematics again, so Tubby and Ameena had thought it best to let him alone temporarily. They had spent almost the entire morning together in the little observatory upstairs, where, through the small telescope they had tried to locate the Solar System.

Sir Isaac, during the morning, had reached a definite conclusion; and now in the face of Tubby's ingratiating attitude, his austerity melted a little, and he detailed his plans.

"I did not stop at Alpha Centauri," he said, "because I calculated that the time we would lose in checking our present high velocity and starting again, would, after a very few stops, exhaust all the time at our com-

mand." He smiled in friendly fashion, and explained in detail.

"But then," protested Tubby, "if we don't never stop, how are we goin' to get any help?"

Sir Isaac hesitated. "To be quite frank with you, my friends, I have about concluded we cannot get any help."

"Oh," said Tubby.

"Oh dear," Ameena echoed faintly.

Sir Isaac continued.

"I think we can save our earth alone—through our own efforts—without any outside assistance."

Coming from such a meticulous person as Sir Isaac this was good news indeed. Tubby and the girl vociferously demanded details.

Sir Isaac raised his hand. "I have not worked it out yet. That's why I didn't want to tell you anything about it. The plan involves a tremendous, a very abstruse and delicate mathematical calculation. If I can secure complete and exact enough figures the execution of my plan will be very simple. I am working on the calculation now. I worked all last night—all this morning. It may require many days—I do not know. But if only my strength holds——"

"You go right ahead," encouraged Tubby. "We won't bother you none. And meantime——"

"In the meantime," Sir Isaac supplied, "I thought we might as well go onward." He smiled with just a touch of embarrassment. "To tell you the truth, I am very curious about these outer realms of space. I have lots of good theories—but I really *know* very little about this portion of the Universe."

"Me neither," Tubby declared liberally.

"And," Sir Isaac went on, "since we have attained this high velocity, and are each moment accelerating it, I thought we might as well utilize our spare time to—well past to satisfy our curiosity. I have a theory regarding the edge of Space——"

"Ah! The edge of Space!"

"Yes, the very ultimate edge of this Space we are traversing. If we could reach it and return with my calculation completed, and then save our Earth, it would——"

"Great!" cried Tubby.

"We can! We will!" cried the girl.

"—it would gratify me very much," Sir Isaac finished.

Thus it was arranged. Tubby and Ameena returned to the observatory—the only part

of the vehicle where they could sing with abandon and without fear of disturbing Sir Isaac.

Two hours later they came quietly down to indulge in afternoon tea. In the instrument room, sprawling in his chair, with his arms on the table and his head upon them in the midst of a litter of papers covered with algebraic hieroglyphics, sat Sir Isaac, fast asleep.

"Poor dear man," murmured Ameena. "He is completely worn out."

"Yeh, he's all in," agreed Tubby. "Let's get him to bed."

They awakened him gently, and ordered him up to one of the bedrooms. Like a child, he obeyed. On the stairs he roused himself sufficiently to caution Tubby.

"**I** WANT you to look ahead through the floor window at least once every minute," he declared. "We have very little room, even out here, at this velocity. I have several times barely avoided collisions that I haven't told you about. If we approach closer than 900,000,000 miles—or even as close as that—to any celestial body of sufficient mass to deflect us, we are lost. Will you promise?"

Tubby promised; and this time, with Ameena's assistance, he kept his word.

As Sir Isaac explained to them the following morning, the danger of collision in one way was now very great, though in another way it had lessened. They had passed Alpha Centauri at a velocity per second of something like 275,000,000 miles. This by steady acceleration, now approximated 740,000,000. Any very gigantic celestial body in front of them would deflect them aside and into it. It was this danger that they must avoid. But of course, so enormous a body would be visible an enormous distance away and so could be seen in time to be avoided.

On the other hand, there was now little danger to be apprehended from smaller bodies such as the asteroid with which they had so nearly collided back in the Solar System. Even if one of these should separate itself from the proximity of the larger worlds, its comparatively minute mass could not exert sufficient attractive force to make the slightest deflection in the course of the vehicle. For a collision to occur, therefore, one of these smaller bodies would have to lie *exactly* in the vehicle's path—a space of some forty feet which was

the vehicle's width. And, as Sir Isaac remarked, any particular forty feet in these vast realms of outer Space was too small to be considered. Sir Isaac also pointed out that any asteroid would be invisible until it was only a fraction of a second away at this velocity. A collision with one was a blind chance which they could not avoid taking.

Twenty-four hours after passing Alpha Centauri the voyagers found themselves distant from the Earth some $15\frac{1}{2}$ light-years. Sir Isaac left his mathematics for an hour that afternoon to point out to his friends places of interest in the Heavens.

The firmament now shone with dazzling brilliancy, though the faint stars of the Milky Way still seemed as far away as ever. The sun of the Solar System—its planets quite invisible—had dwindled to one of the faintest of all the stars in that region. Alpha Centauri, visually quite near the sun, was infinitely brighter, but still it was surpassed by many of its fellows.

Sir Isaac, passing from one window to another, pointed out the red stars—Antares, most deeply colored of all—Betelgeuse, Aldebaran and Arcturus. Tubby wondered if any of these stars were as large as the Sun, or whether it was only on account of their closeness they looked so much brighter. Sir Isaac laughed with genuine amusement.

"They are somewhat larger," he said ironically. "Take Betelgeuse, for instance. There's our Sun—there's Betelgeuse. Our Sun is about $15\frac{1}{2}$ light-years from here—Betelgeuse is about 150 light-years!"

"He—he must be lots bigger, then," Tubby concluded after a moment of amazement.

"He is," said Sir Isaac. "Professor Albert Michelson measured the diameter of Betelgeuse in the autumn of 1920. His figures show that star to be equal in size to 27,000,000 Suns like ours!"

Tubby was staggered. Sir Isaac went on calmly.

"The diameter of Betelgeuse is 260,000,000 miles. Let me show you how really enormous that is. You remember our trip from the Earth to Venus, and to Mercury? Well, if Betelgeuse were a hollow globe and you put our Sun suspended in its center, Mercury, Venus and the Earth would all have plenty of room to traverse their orbits inside it! Even the orbit of Mars would be only a short distance outside!"

Neither Tubby nor Amena could think of anything to say.

"Professor Michelson found all that out by what he calls the 'Interference Method.' I won't bother you by explaining it. . . ." Sir Isaac raised his hand despairingly. "Of course Michelson deserves a lot of credit. I never had occasion to work on just that particular problem, or I would, of course, have been able to—"

"Show us somethin' else," Tubby interposed.

Sir Isaac pointed out several binaries that now were visually separated. It was all a most wonderful sight; the multiple stars—"clusters"—and the curious spiral nebulae, the still faint, far-off Milky Way. It was indeed a stupendous, awe-inspiring sight, though Tubby and Amena were now sufficiently used to it, to be comparatively unimpressed.

For nearly a week the vehicle, with steady acceleration, dropped into Space, while Sir Isaac worked almost incessantly at his computations and Tubby and Amena engrossed themselves in each other's companionship.

They entered the Milky Way on the seventh day after passing Alpha Centauri. Though their actual entrance into the Galactic Plane was unmarked by any visual phenomena—the firmament blazed with stars as usual—a different set of stars were now brightest, but to the non-technical observer there was no marked change.

During this week an apparent star motion had gradually increased, until now, looking down through the lower windows, the stars could be seen opening up as the vehicle dropped into them—separating themselves, passing upward, across the side windows, and closing together again overhead.

"How fast we goin' now, professor?" Tubby asked once.

It was supper time. Sir Isaac hastily masticated a huge mouthful of cheese sandwich and washed it down with a swallow of coffee, before replying.

"I cannot tell you in miles," he answered. "In light-years I estimated it this morning to be about $1/120$ a second. That is, $1/2$ light-year a minute, or about 720 a day. We are now about 3,300 light-years from the Earth."

Tubby had by this time made up his mind never to be surprised again at anything.

"That's an awful lot faster than we used

to go, ain't it?" he remarked. "Around Mercury or Venus, for instance."

Sir Isaac's smile was condescending.

THE diameter of the entire Solar System, from Neptune's orbit, across the Sun, and out again to Neptune's orbit on the other side is a mean distance of 3,393,036,000 miles. We are traveling that distance now just about once every second!"

Probably no other statement of Sir Isaac's was so amazing. And, as Tubby and the girl pondered it, the immensity of this Space through which, day after day, night after night, they were plunging at this almost inconceivable rate, was made clear to them.

Sir Isaac added laughingly:

"The Solar System isn't very large. Why, that star Betelgeuse could hardly turn around in it. A mere 3,300,000,000 miles—it's only a few times the diameter of that one star."

How Sir Isaac ever avoided the stars of the Milky Way, even with the gigantic distances separating them, he never understood. All that night, his still elusive calculation neglected, he sat at the floor window in the instrument room. From time to time he leaped to the keyboard to alter their course. It was a nerve-wracking, horrible night. But in the morning, when Tubby, and a little later, Amena appeared, the Milky Way lay glistening above them. Below, only a few stars showed; beyond that, darkness—blank, unfathomable.

Sir Isaac greeted his friends with a wan smile; he was on the verge of physical exhaustion, but his spirit remained undaunted.

"We are beyond the stars," he said. "It is as I always thought. Even from Earth I have telescopically observed a perceptible thinning out of the Celestial bodies. We have reached the limits of our Celestial Universe on this side. We have now below us only empty Space—unless we encounter another Universe."

Sir Isaac quite evidently had his own theories as to what lay beneath them in that void of darkness. But he smilingly resisted all Tubby's efforts to make him talk about it.

Finally in desperation, Tubby exclaimed:

"We ain't got no business goin' much farther. The opposition of Mars comes off in forty-two days from 6 P. M. tonight—an'

we're gettin' a fair distance away from the excitement."

Sir Isaac smiled confidently. "We shall return without a stop—quite in time, even at our present speed. That isn't worrying me. It's—"

"Your calculations?" supplied Ameena. "Your great plans of which you will tell us nothing? How are they progressing, Sir Isaac?"

His face clouded. "I have been so busy," he said somewhat anxiously. "But I'm making progress. Now that we are beyond the stars, I will have more freedom—will redouble my efforts."

Poor Sir Isaac, for all his eagerness to work, was forced to retire immediately after breakfast for a few hours of much needed rest. They awakened him for luncheon—which he gobbled in haste—retreating at once to the instrument room, where by the light of the table electricities, he became instantly immersed in his interminable figures.

Thus, in similar fashion, while the vehicle plunged onward through Space at a velocity sufficient to take it across the 3,393,036,000-mile diameter of the Solar System in very much less than one second, fifteen more days and nights of interminable voyaging went by!

The Universe of which our Solar System is so minute a portion, had long since faded into invisibility. Others had been distantly sighted on both sides, and passed overnight—reduced by comparison into mere nebular regions, though each may have been as large, or larger than our own Universe.

On the fifteenth day, skirting alongside a smaller Universe—possibly no more than a thousand light-years in diameter, Sir Isaac announced that they were approaching the end of their outward voyage.

The vehicle was still dropping to that vast void of silence and darkness with a velocity now quite beyond calculation. It was a decreasing velocity, now, however, for, sometime since, Sir Isaac had begun to retard it.

Overhead, the last starry firmament was visible, though every hour with perceptibly lessening brilliance. Tubby and Ameena sat together in the observatory, watching the receding stars, and wondering how, among all these Universes, Sir Isaac would ever set his course going back, in order to reach that particular one of the Solar System to which they belonged.

The temperature of the vehicle was now,

curiously enough, very comfortably warm—so warm, indeed, that Tubby wore his white clothes and Ameena that dainty costume in which he had first seen her on Venus. This paradox of temperature—for here in outer Space it should have been insufferably cold—Sir Isaac had explained to them the evening before. Their velocity was so great, he said, that even the minute, widely separated atoms of the ether, pounding against the vehicle's base, were heating it—just as it had been heated before when passing through the atmospheres of the several planets upon which they had landed.

Sir Isaac, alone in the instrument room, worked over his figures incessantly, feverishly, all that afternoon. It was nearly five o'clock when, with a cry of triumph, he dropped his pencil and staggered to his feet.

"I've solved it! Tubby, Ameena, my friends, at last the problem is completed. We shall save our Earth now—nothing can prevent us!"

With head reeling, he groped his way out into the dim hallway and up the stairs, looking for his companions. In the starlight of the observatory he found them—Tubby lying prone with his head in Ameena's lap, she stroking his hair gently, singing softly a tender love song of Venus.

"I've solved it!" Sir Isaac cried. "We cannot fail now to save the Earth! My calculation is completed at last, down to the smallest decimal."

Tubby turned his head slightly; Ameena's song died away.

"Oh, is that you, professor? Come on in an' congratulate us. Ameena an' me just got engaged!"

CHAPTER X

THE SILENT, lonely, little vehicle plunging through the darkness of Space, a world to itself, now rang with the gay laughter of its three inhabitants. Sir Isaac had successfully completed his complex calculation, using therein every intricate device known to higher mathematics, with a verified result correct to seventeen decimals. Tubby, and Ameena were engaged to be married. What stupendous events to have occur simultaneously. No wonder the little Celestial wanderer was the scene of rejoicing.

It was an evening of the gayest festivity.

"We must hasten now," Sir Isaac said in a moment of comparative quiet. "Nothing

remains but for me to show you the edge of Space, which I want very much to do. Then we must hurry back and put my plan for the downfall of stars and his allies into operation. I fear nothing now. We cannot fail."

"You can't get back too quick for us," Tubby declared. "This here outer Space ain't no place to go lookin' for a minister in. Where we goin' to get married, Ameena? The Earth or Venus?"

The girl had not yet made her choice; and the question was left open.

The penny-ante poker game in the instrument room—a game at which Ameena had now become extremely proficient—lasted well into the night. When it was over Sir Isaac made a brief calculation and concluded that the "Edge of Space"—as, with a slight smile, he still insisted on calling it—was still considerably below them. The vehicle, therefore, needed no attention.

After this pleasant discovery, Ameena lingeringly parted from Tubby and retired to the upper floor. The two men made up their beds in the instrument room. Within fifteen minutes all three were fast asleep.

Evidently nothing unusual occurred during the night, for when the three voyagers awoke about ten o'clock next morning they found themselves still dropping into the abyss of blackness. Overhead the stars of that last Universe were still visible, though now extremely faint.

During a lazy breakfast the three friends fell to talking personalities.

"You got a lot of names, ain't you, professor?" Tubby said.

"Quite a good many," responded Sir Isaac pleasantly. He was obviously pleased at the question. "I am usually known merely as Sir Isaac Swift Defoe Wells-Verne—but I have other names—Stockton, for instance."

"What's the 'Isaac' for?" Tubby asked. "I ain't never seen that on your books."

Sir Isaac frowned. "Well, to tell you the truth, my friends, I am just a little ashamed of that. Even in my early infancy my marked scientific bent was apparent, and my grandfather insisted on my being named Isaac. He was a great admirer of Isaac Newton, you see. Of course Newton was, in a way, a brilliant man. I would have preferred Jules, or Herbert George however. I often use both those names. I think Herbert George is rather natty, don't you?"

Ameena agreed that it was.

Sir Isaac might have pursued this interesting topic indefinitely, but Tubby cut him short.

"Won't you please tell us about this here Edge of Space we're headed for?"

Sir Isaac, in view of their imminent arrival at the Edge of Space, evidently considered that the proper dramatic moment had come to tell them about it.

"I'm sorry you are not familiar with my scientific narrative about this subject," he began somewhat pompously. "However, that is immaterial.... In it I explain that every atom of the Universe is really a world in itself. Its interior is a void of ether, an infinitesimal core of Space, surrounded by a shell of matter. That is an atom. I do not mean the old-fashioned word atom, but the inner nucleus which the professional scientists of Earth have just managed to discover. Do you follow me?"

"Sure," declared Tubby. "An atom is like a coconut, only with ether where the milk ought to be."

Sir Isaac beamed; Ameena regarded Tubby with admiration.

"**E**XACTLY," agreed Sir Isaac. "There are electrons, of course, which Sir Ernest Rutherford most doggedly insists are particles of disembodied electricity—negative, you know—spontaneously liberated from the atoms. However, in this Golden Atom which I described, there revolved, in its central void of ether, an infinite number of minute worlds, stars, planets, comets; a complete little Universe of its own. Do you still follow me?"

His two auditors nodded somewhat dubiously.

"What's this got to do with the Edge of Space?" Tubby demanded.

"I'm coming to that. You must understand now, that just as all distances and all motions are relative one to the other, so also is size. I have brought to your imagination the golden atom containing a minute Universe in its central void of Space. That to our minds, is almost infinite smallness."

Sir Isaac hesitated impressively.

"Now, my friends, remember, size is only relative. Conceive now another atom, an almost infinitely large atom. Within this gigantic atom, revolving in its central void of ether, place a Celestial Universe in which you and I live, the stars and planets among which we have been voyaging for many days past."

"Yes," said Tubby faintly. "As' then—"

"Then you will realize that we are soon to reach the limits of this atomic void. We shall land upon the inner, concave surface of the atom which contains us!"

Sir Isaac's smile was triumphant.

"Is it not wholly logical that we shall land upon this inner surface shortly? But we will not stay there, or proceed further. We must return at once to our own tiny little planet. So much for facts. If you wish to imagine beyond that, I shall say that were we able enormously to increase our bodily size, we might pass through the shell of our Atom, which possibly is as thick through as it is across its central void of Space. Then we should emerge on the convex outer surface. By still further increasing our bodily dimensions, we would outgrow this Atom and find ourselves in another world, an inconceivably large world, of which this Atom of ours may quite well be an atom of somebody's wedding ring, or the atom of a column in a King's castle, or the minute fragment of a grain of sand in a vast desert. You asked me about absolute motion. Suppose our atom *is* in a grain of sand of some vast desert and is now being blown in a storm—or that—"

"Never mind any more," Tubby cried. "We got the idea, ain't we, Ameena?"

"It is very wonderful," the girl declared slowly. "But a little difficult to follow, just at first."

"You'll get used to it," said Sir Isaac. "Just keep on thinking about it a while. It's my own theory. I'm going to tell Sir Ernest about it because my atom is really that inner nucleus, that pection, around which his electrons revolve. So you see this theory of mine will help him out a lot. . . . Ameena, you do make very good coffee. Can I have another cup?"

When, after breakfast, they gazed down through the floor window, a very faint luminous glow seemed growing in the blackness far below them. Sir Isaac regarded it intently a moment, then with a cry of satisfaction hastened to the keyboard.

"That is light diffused throughout the atmosphere of the Inner Surface," he said, as he altered the positions of several of the keys.

"I am checking our velocity very rapidly now," he added as he straightened up. "We will arrive at our destination this evening."

His prediction was correct. All that afternoon the luminous glow beneath them

grew in intensity. By supper time it gleamed like a pale phosphorescence, spreading out in all directions to the visual limits of the floor window. Shortly after supper they entered the atmosphere of the Inner Surface at an altitude which Sir Isaac calculated to be several hundred thousand miles.

It was nearly nine o'clock when Tubby, peering downward, saw what might have been the broad plateau of a mountain-top coming up out of the yellowish, luminous haze. It was a flat surface extending out of sight in three directions. But its fourth side, almost directly beneath them, ended in a sharp line with a dimly yellow abyss beside it.

"Look at the cliff," Tubby called to Sir Isaac. "You better slow up some more as' figure out where we're goin' to land."

They were then some ten thousand feet above the top of this "cliff," as Tubby called it. Sir Isaac, after a careful inspection of it which was difficult in the very dim, hazy yellow light, finally decided to descend very slowly close beside its perpendicular face and thus reach the lower level of land adjacent.

They made the descent in the dim starlight in an increasing yellow glare from below a thousand feet away from the face of the precipice. The wall of rock extended in a direct line as far as they could see, as straight as though it were hewn by a rule.

IT WAS a descent of some fifteen miles.

Tiny points of light now showed beneath them. Through the side window of the instrument room, the dim face of the huge rocky wall slid swiftly upward, as though the vehicle were a silently dropping elevator car. Occasionally, rectangular openings in the rock wall went up past the window, openings five hundred feet long, from which a lurid glare of yellow-red light blazed with blinding force out into the night.

"Say," whispered Tubby, awestruck. "What sort of a place is this?"

A brilliant ball of fire, seeming hardly more than a hundred feet away, came vertically up past the side window, a ball of blazing flames ten times the size of the vehicle itself. The heat from it was tremendous. From the lower window an even brighter though diffused light was streaming in; and a deafening, roaring noise filled the room.

It all happened within the space of a few seconds. Sir Isaac, who had been hovering anxiously between the windows and the keyboard, became suddenly confused. He started toward the table, then changed his mind and leaped to the side window, half falling over Ameena, who was in his path.

"Look!" shouted Tubby, above the roar. "Hey, look out, professor! Let's get out of here!"

An enormous, swiftly moving black surface, completely obstructing the side window for an instant, went past close outside. Sir Isaac leaped back to the table just as the vehicle struck something soft and yielding—a glancing, sidewise blow. Tubby and Ameena were hurled to the floor. Sir Isaac, clinging desperately to the table, fumbled for the keyboard, and altered several of the keys. There was a gigantic swishing noise; the room trembled—tilted sidewise. Then silence.

Tubby raised his aching head. "Where's Ameena? Ameena! You ain't hurt?"

Her faint voice reassured him. He raised himself to a sitting position. "Oh, professor—you hurt? What happened? Where are we?"

They were none of them more than badly shaken up. The room was level again, vibrationless, soundless. Through the floor window shone the faint stars; out of the side window, high above, the yellow glare of the Inner Surface was fading. The vehicle had turned over, and was again dropping out into Space!

Tubby lifted Ameena to a chair and kissed her reassuringly. "Sell right. We ain't hurt none. What happened, professor? What was all that?"

Sir Isaac did not know. For an hour they compared notes on what they had seen. It had all happened so quickly; it was so confusing, so unexpected. Their view through the little windows at near objects was so limited they found that each of them had seen things differently.

"Well, anyhow," Tubby declared with a shrug, "we landed on that there Inner Surface, an' we got away again without gettin' smashed up. Now let's get home an' fix this Mars business. We only got twenty-six days left."

With the entire repellent force of the Inner Surface above it, and the attraction of several of the celestial universes at its base, the vehicle rapidly gained velocity. It was nearly midnight when Sir Isaac, coming out

of a profound meditation, suddenly exclaimed.

"I know what happened to us on the Inner Surface! Fancy that! How could I have been so stupid?"

"What?" demanded Tubby.

Ameena, who just at that moment was preparing to retire to bed, stood poised with a bottle of liniment in her hand.

Sir Isaac said excitedly:

"The inhabitants of the Inner Surface, relative to us, must be gigantic in size. How silly of me not to have realized that!"

"Well?"

"Well," Sir Isaac continued, "that was a gigantic building alongside of which we went down—a building fifteen or twenty miles high! Those huge, yellow rectangles were its lighted windows! That ball of fire was a street light! We descended directly into a city street, and collided, probably, with the coat-sleeve of a pedestrian!"

CHAPTER XI

THE VEHICLE had passed within the orbit of Jupiter on its return voyage before Sir Isaac deemed it expedient to explain to his fellow voyagers his mathematical plan for the salvation of the Earth. It was the morning of the day before Mars was to be in opposition with the Earth. To be exact, just thirty-four hours remained at the moment the orbit of Jupiter was crossed.

The return trip—of a little less duration than the voyage out—had been devoid of any exciting events chiefly owing to the unflagging vigilance of Sir Isaac. His genius for astronomy—by some method which he did not see fit to explain to his friends—enabled him unerringly to find his way back to the proper Universe, and thence to the Solar System.

During these days and weeks, sleeping little, Sir Isaac had remained almost constantly at his post at the instrument room floor window, or at the table beside the keyboard, verifying over and over again, his gigantic calculations; or writing on his now very bulky manuscript. Tubby and Ameena, left thus to their own devices, passed the time pleasantly enough, singing their duets whenever Sir Isaac would let them, and always cooking the meals and washing the dishes together. The wedding had now been set to take place on the Earth, immediately upon their arrival, with a honeymoon trip to Venus.

At meal time which the three friends occupied principally with argument and with scientific dissertations from Sir Isaac, Tubby had once remarked:

"Them inhabitants of the Edge of Space must have been awful big, perfessor. Big as anybody could get. Ain't I right?"

Sir Isaac, in a manner that now was becoming quite habitual, smiled condescendingly.

"My dear fellow, those inhabitants of the Inner Surface of our Atom may be, possibly, several hundred times larger than ourselves. But, like us, they are merely denizens of an infinitesimal Atom. The inhabitants of that outer world are so much larger that their most powerful microscopes—assuming they have microscopes—would be necessary even to see our Atom itself much less see us or the planets in it!"

Within the orbit of Jupiter—they were heading for Mars and had passed a very considerable distance from Jupiter itself—Sir Isaac materially checked their velocity. The region of the Minor Planets lay ahead. It was among them that he planned to operate.

After breakfast that morning he called Tubby and the girl into the instrument room and very quietly but solemnly announced that he was ready to explain his plan. Tubby and Ameena sat together in the huge easy chair, she perched on his lap, and hand in hand they prepared to give Sir Isaac their closest attention.

"My dear friends and fellow voyagers," Sir Isaac began, with something of the tone of a public lecturer, "we come now to the most important, most remarkable, and I may say the most awe-inspiring event of our scientific adventure around the Celestial Universe."

"I wish he did not have such long prefaces," Ameena whispered to Tubby.

"Sh! you'll make him mad," Tubby whispered back. "He don't mean nothin'. He gets that way from writin' so much."

"As you both know," Sir Isaac went on, ignoring these whispered asides, "at 6:13 P. M. tomorrow evening the Planet Mars will be at its closest point to the Earth. We anticipate then that the combined Martian and Mercurian armies will voyage to our Moon, which already they have conquered, there to prepare to attack the Earth. It is necessary, therefore, for us to prevent this migration. If we can keep the armies on Mars their small force now occupying

our Moon will be powerless for offensive movement. We could even send armies from Earth to destroy them; or, at the next opposition doubtless they would return to Mars of their own volition."

"Right," Tubby agreed impatiently. "But please tell us how we're goin' to stop the Mars armies from movin' over to our Moon."

"I will," stated Sir Isaac. "But first you must understand the scientific laws governing what we are about to do. A poet once said, 'Thou canst not touch a flower without troubling of a star.' He did not mean it scientifically perhaps, but its scientific application is very pertinent. It means that if you so much as pick a flower anywhere in the Universe, you alter, by some minute fraction, the course of every star—every celestial body, no matter how distant, or how gigantic."

"I see you do not quite understand me. The Celestial Universe is very delicately balanced. Every force acting upon the celestial bodies has another force to counteract it. Now since every body attracts every other body directly as the mass you will realize that a daisy growing in a field on Earth attracts Neptune or Mars just as much in proportion to its mass, as they attract the daisy. And since attraction is inversely as the square of the distance, it follows that if you pick the daisy, thus altering its position, you alter its attraction. And therefore—very minutely, of course—you disturb the movements of every body in the Universe."

"I think we understand you," Ameena said. Sir Isaac had paused, and this time Tubby had failed to make any comment. "It is really very interesting. Do go on, Sir Isaac."

Sir Isaac continued:

"Well, I propose to do just that very thing. To——"

"Pick a daisy?" Tubby put in. He glanced at Ameena for approval of this quip, but she frowned.

"To so alter the course of some very small celestial body—by using the attraction of our vehicle upon it—that a series of collisions, progressively greater in the masses of the colliding bodies, will rapidly occur among the Minor Planets."

"Oh," said Tubby, somewhat abashed. "Then what?"

"I have figured it out very carefully," declared Sir Isaac. "You may appreciate possibly the abstruseness and the delicacy of

such a calculation. The collisions will climax at 3:34 P. M. tomorrow afternoon, by——"

The sentence was never finished. Past the side window, very close outside, a gleaming white object flashed! Sir Isaac, Tubby and the girl leaped to their feet in fright. A glance upward out of the side window was enough. It was that same Mercurian vehicle, hovering here between Mars and Jupiter, awaiting their return!

"Say—what the—did they try an' run into us?" Tubby gasped.

The glistening white cube was receding rapidly above them. Suddenly it turned, and as they hurried into the store-room to observe it from there, it came rushing toward them again.

"**I**T'S RUNNIN' into us!" Tubby cried in terror. "Hey, professor! Let's do somethin'—let's get a-goin' somewhere!"

Sir Isaac rushed back to the keyboard. The horrible meaning of the situation became clear. The Mercurian vehicle, marined by "suicide volunteers," was endeavoring to destroy them and itself simultaneously by a collision in Space!

Sir Isaac, his blood running cold in his veins, shook himself together, and with deliberate care depressed two of the keys. The Heavens turned over swiftly, dizzily.

Tubby, who was standing in the center of the room, clutched Ameena for their mutual support.

"Don't look at them windows!" he cautioned. "Close your eyes. Professor, which way we goin'? What'll I do to help? Where's them Mercurians? Are we duckin' 'em?"

Nothing could be distinguished through the windows save the rapidly shifting firmament. Sir Isaac gritted his teeth.

"That tiny asteroid!" he muttered. "We were near it, the first asteroid in my calculation."

A blinding white glare burst through the side window; Sir Isaac, desperately pressing other keys, finally brought the Heavens to rest.

"It's—all right," he panted. "That burst of light—that——"

Through the side window a tiny blazing globe was receding above them; from none of the windows was the Mercurian vehicle to be seen.

"We are safe," said Sir Isaac a moment later, when they had all calmed down a

little. "The Mercurians collided with that little asteroid. They are annihilated."

Sir Isaac's face was as sober as though this were personally a great misfortune to himself—which indeed it was. He added:

"That asteroid was the first in my calculation—the one on which I was to begin operations. This unforeseen collision has changed its course—the whole fabric of my calculations has been altered." Tears welled into his eyes. "I—I tried so hard to have it mathematically perfect. And now it's ruined! Now we are powerless to save our world!"

The unfortunate man was overcome for a moment. Tubby and the white-faced girl sat beside him.

"You can figure it out again," Tubby said consolingly. "Try, professor. Maybe it ain't ruined at all."

Under the influence of Ameena's gentle fingers stroking his hair, and her soft words of courage in his ear, Sir Isaac suddenly braced up.

"I'll do it!" he cried. "Give me my pencil and paper.... Ameena, make me some strong, black coffee. Bring it here.... with my lunch.... Tubby, give me my cigarettes, and let me alone. Go away. I must rectify this terrible error."

He dashed the damp locks of hair from his eyes; and while Ameena hurried into the kitchen, he lighted a cigarette, pushed Tubby away, and plunged feverishly into his ruined computation. Ten minutes later he was altering the vehicle's course and, with his array of delicate scientific instruments, was making careful observations of the asteroid's present direction and flight.

Tubby kept out of the instrument room. At noon, Ameena took Sir Isaac's luncheon in to him on a tray. He smiled up at her, momentarily suspending his flying pencil.

"I do hope your computation isn't ruined, dear Sir Isaac," she murmured gently.

"Oh, no," he said. "In fact I am beginning to think quite the contrary." He seemed wholly cheerful. "The Mercurian vehicle colliding with my asteroid altered its course, naturally. But I am beginning to discover that the alteration is favorable to my plans rather than the reverse."

He patted her shoulder. "Thank you, Ameena.... That stew looks delicious.... I shall have my new calculation completed in an hour, I hope. That Mercurian collision was a blessing in disguise."

So it proved, for by two o'clock in the

afternoon Sir Isaac called his friends into the instrument room and triumphantly displayed his new set of figures.

"Very good indeed," approved Tabby. "Let's get to usio' 'em. What do we do first?"

"At 3.57 P. M. this afternoon we shall approach that same asteroid," Sir Isaac announced. "Just leave everything to me. It is all quite simple now!"

At 3:57 P. M. exactly they were encircling the asteroid at a distance of some ten miles—speeding around it in a circular orbit as though they were its satellite. But with each revolution they passed on one side and drew away slightly, coaxing it from its path by their attraction.

It was a tiny celestial wanderer indeed—not more than three or four thousand feet in diameter, Sir Isaac said—nothing but a boulder flying alone through Space.

At 4.17 P. M. the vehicle withdrew. Tabby was anxious to have something happen; but for nearly an hour nothing did. It was 4:45 P. M. when Sir Isaac pointed through the side window to another, somewhat larger asteroid approaching. With careful work at the keyboard he swooped the vehicle toward it—around it twice—and then slowly away again in the opposite direction.

"There," he murmured. "I think I have done my part correctly. The laws of Celestial Mechanics must do the rest."

He sat by at the side window, watching. Tabby and Ameena saw the first asteroid far above them. The other was obviously nearing it. Both had been deflected from their normal course by Sir Isaac's skill; a collision was inevitable.

IT CAME at 5:51 P. M.—as Sir Isaac had calculated—a soundless flash, and then a new, larger celestial body, the fused mass of the other two, wavering in Space, plunging diagonally toward the Sun, and at last finding its new orbit by that delicate balancing of forces which is the marvel of Celestial Mechanics.

Sir Isaac was jubilant. He took several observations of the new asteroid.

"Perfect, my dear friends. The new orbit is identical with my calculation. There will be another collision, with a much larger planetoid, at 7:19 P. M. Let us have dinner."

"Very good idea," approved Tabby with relish.

Tabby and Ameena still had only a vague

idea of how all this was to save the Earth; but they trusted Sir Isaac implicitly. Besides, they did not dare ask any advance details, which would have offended Sir Isaac's sense of the dramatic.

The second collision—another, larger flash—took place exactly at the appointed time. And all during the evening and far into the night, other collisions occurred. Each involved larger bodies—and after each, from the vehicle which followed in their train, Sir Isaac computed the orbital elements of the new celestial body.

"You had better go to sleep," he said, at two o'clock. "There will not be another until 4.35 A. M. It involves a very considerably larger body—I shall wake you up in time to see it."

He added solemnly:

"I trust this next Minor Planet is not inhabited. I do not think so, though it is over two hundred miles in diameter. I did not want to involve it—but I had to."

At 6:03 P. M. the following evening, just twelve minutes before the long-anticipated opposition of Mars with the Earth, the climax came. There had been two gigantic collisions during the day. The last one—at 2:25 P. M.—involved two bodies of almost equal mass which approached each other from diametrically opposite directions. A head-on crash ensued. A new body, fused into a molten mass by the created heat of arrested motion, hung for an instant suspended—completely devoid of orbital velocity. Then it moved downward—slowly at first, then swiftly, with constant acceleration plunging down toward the center of mass of the Solar System—the Sun.

The vehicle followed it cautiously. Watching this enormous, fiery derelict created by the mathematical genius of Sir Isaac, it was nearly six o'clock before Tabby and Ameena grasped the true significance of what was taking place before their very eyes.

The new asteroid—five hundred miles in diameter, a white-hot core with flames hundreds of miles in height leaping from it, plunged for the Sun. But Mars also lay beneath it though slightly off to one side—Mars, now a huge, reddish, smug-looking crescent across the lower firmament.

Minutes passed. The three watchers crouched tense at the lower window of the instrument room. The blazing asteroid plunged on. Its course for the Sun would take it half a million miles to the side of

Mars! Five minutes more! The asteroid, feeling Mars' attraction as it approached, began turning gradually aside, deflected by this other attraction which at such proximity was greater than the Sun's.

Then at last Tubby understood! He gripped Ameena—breathless.

"Look! Mars is pullin' it! Look!"

It was 6.03 P. M. exactly when, with a gigantic, soundless flash, the molten asteroid collided squarely with the Planet's upper surface!

CHAPTER XII

WHAT a triumph, even for the genius of a super-mathematician!

A blazing, molten mass of matter five hundred miles in diameter had fallen upon the surface of Mars at almost the very moment of its anticipated triumph over an inoffensive neighboring planet! No wonder Tubby and Ameena were overjoyed! No wonder Sir Isaac's pale, intellectual countenance could not but reflect the pride in his heart!

Tubby shook his friend's hand warmly; Ameena kissed him.

"Well," declared Tubby. "I guess that settles them Martians. Some excitement for them right now!"

"Did it kill many of them, do you think, Sir Isaac?" Ameena asked anxiously. "Women and little children——"

"I'm afraid it did," Sir Isaac said soberly. "I could not help that—the innocent must everywhere suffer for the guilty. I had to do the best I could for our own world."

He sat down, pondering. Then he added:

"I have no idea what such a collision would do or what may be the result of it to the orbit of Mars and thus to the other planets. The heat generated may have roasted every living creature on the globe. Or perhaps not. But I rather imagine those armies will have enough to do at home without undertaking an invasion of the Earth for some time to come."

"I should guess yes," Tubby declared enthusiastically. He threw his arms around Ameena and kissed her vigorously. "Now all we got to do is hurry right home so you and me can get married. Ain't I right, kid?"

The girl agreed that this was logical.

"I shall have you there tomorrow," said

Sir Isaac. "We need not bother with the Moon—let us leave that little Martian army marooned there. We will let it alone—it cannot harm us."

"Sure," agreed Tubby. "Let it alone. Come on, let's eat and then play poker."

On this last leg of the journey, Sir Isaac insisted on going slowly. In the first place he was thoroughly exhausted and demanded twelve solid hours' sleep; and also, with Tubby and Ameena thus in continuous command, he felt it was advisable to make haste slowly. It was therefore not until 9:43 P. M. the following evening that the vehicle landed again upon the Earth from which it had departed some sixty days previously.

The last evening in the vehicle was a solemn one. Tubby and Ameena were to part from their friend and take their honeymoon trip alone in it to Venus. A hazardous voyage, doubtless! But youth and inexperience are always confident.

"You're a very wonderful man, Sir Isaac," Ameena said during that last supper.

"You sure are," Tubby confirmed. He hesitated, scratching his head. "But say, professor, there's one or two things about this here voyage of ours I ain't quite got clear."

Sir Isaac nodded encouragingly.

"For one thing," Tubby began. "I ain't got this gravity part very straight. Why is it when we're in this vehicle we don't personally feel all these here changes of gravity? If the gravity is cut off from under us why don't we get lighter?"

It was a stupendous bit of logical reasoning on Tubby's part. It surprised Ameena; it amazed Sir Isaac.

"Why—why—" he stammered. Then he smiled frankly.

"I really cannot explain exactly," he confessed. "The thing surprised me very much. I've been worrying over it for my manuscript. It is a fact that we do not feel any changes of gravity until we actually land upon some celestial body. But why, I cannot say. I think it's because of our velocity, the constant acceleration or changes of velocity of the vehicle. Motion and gravity are very closely related. If it's that, Einstein would know all about it. He disagrees with me on almost everything, but still he's a nice sort of chap. I think I shall have to consult him."

"I would," said Tubby. "Then there's another thing. You got this here vehicle built wrong. You got the observatory on top an' we're always goin' the other way. You never onc't used that little telescope. An' then there's——"

"Tubby!" cautioned Ameena. And, in deference to the feelings of their friend, who after all was only human and therefore liable to err, Tubby took the hint and stopped.

THEY landed, after a careful reconnoiter, within a few hundred feet of where they had started. As they stepped from the vehicle to that earth upon which Ameena had never before set foot, Bill Hawkins' apple trees were in plain sight in the moonlight. Instantly Tubby remembered his wonderful gift which had brought Sir Isaac's Inter-planetary vehicle into material being. The thought of it had never crossed his mind since the first few minutes after their departure from Earth. How foolish all their perturbation over the Martian attack! Why all they need have done was come home, and Tubby could have wished that all the Martians and Mercurians would drop dead as fast as they landed!

Tubby explained all this excitedly to his friends. Sir Isaac frowned.

"I thought of that," he said. "But I could not be concerned in trickery like that. My public would not stand for it. We had a scientific problem to solve, and we solved it with science—quite reasonably and properly."

Tubby nodded acquiescence; but his eyes were sparkling as he regarded Bill Hawkins' apple orchard.

"All right, professor. But I'm goin' to get revenge on this gay Hawkins anyway. You do things your way—I do them my way. Come on over an' let's see them apples turn rotten."

Sir Isaac was greatly annoyed. "I beg of you not to. It is childish. To engage in such foolishness, after all our scientific adventures——"

"You did that onc't," Tubby suddenly accused. "An' when you wrote how you did it, you signed that there Wells name. I read it."

Sir Isaac flushed. "Yes, I did," he admitted, with some heat. "I did descend once to such an unpleasible trick—and I've

been sorry for it ever since. I've been trying to live it down. I—Tubby, you'll only bring disaster upon yourself—upon all of us. Forget that ability you have. Don't ever——"

"I ain't goin' to forget it," Tubby persisted doggedly. "I wish all Bill Hawkins' apples was rottin' on the trees. I wish——"

A diabolical memory of that similar situation Sir Isaac had once conceived under his favorite "Herbert George" name came to Tubby.

"I wish the earth was revolvin' twice as fast as usual, so Bill Hawkins' house would fly off in the air," he intoned.

Ameena flung her arms about his neck; Sir Isaac gave a cry of terror. A fearful gale of wind came roaring down upon them. Stones, sticks, every manner of flying missile, whistled by.

Sir Isaac, shouting something incoherent, flung himself prone upon the ground. Tubby gripped a tree-trunk to boid himself from blowing away; Ameena clutched him in terror.

In the midst of the hurricane Bill Hawkins' house was standing firm. Suddenly madness possessed Tubby.

"I wish the Earth was revolvin' ten times as fast! I wish——"

Sir Isaac's body left the ground, hurtling into the air like a bullet. Tubby swung one arm around Ameena, and one about the tree-trunk. He felt like a balloon tugging its leash. The wind was a cyclone. A house went sailing through the air—Bill Hawkins' house.

"Tubby! Don't, Tubby!"

The girl's appealing cry frightened Tubby. A flying billet of wood struck him viciously on the shoulder. He tried desperately to think of something to stop this horrible cataclysm.

"I wish——" he murmured. "I wish I hadn't never been able to wish nothin'. I wish I'd forget all about havin' done this. I wish——"

The clink of the poker chips was incessant—annoying. Tubby stared across the smoke-laden room at the three men under the circle of light. He remembered dimly that they had been arguing, and sat up abruptly.

"As I was sayin', Jake," he announced, "I got a idea that this here Edge of Space——"

NO STAR SHALL FALL

an extravaganza

by
**WILFRED OWEN
MORLEY**

(Author of "A Matter of Philosophy," "Ambition," etc.)

"So long as the race endures, thus long shall mankind extend its hand to help any other beings who seek our aid. No creature shall perish; no star shall fall if it be within our power to set aside the danger."

REMEMBER how startled you were when you awoke suddenly last night? For a moment you could not believe that you were in the world of actuality, so clear and intricately defined had been the sequences through which you had just passed. You were sure it was not merely a dream. You knew that, in some way, you had passed physically into the far-distant future, lived a portion of your own life there.

Your first impulse was to get up and write down all the memories that flooded your consciousness, for you didn't want to lose any of them. But the first shock of awakening had now passed away; you felt drowsy. You lay back thinking that you wouldn't forget this anyway; you couldn't forget. Perhaps if you made just a few notes now, that would be enough. Tomorrow you would get to work and write down the entire experience in full detail.

While you were thinking thus, sleep claimed you again. Morning came and you awoke, got up, and went about your usual way of living as if nothing had happened.

But you haven't forgotten, really. Your conscious mind, occupied so fully as it is with the business of making a living in



this world, has merely shoved these memories into a corner of your brain. Relax. Forget for a moment about your obligations, your ambitions, your problems. Relax completely and remember. What was the first impression, now? How did it start?

TWO people, a man and a woman strolling in the city. Both dressed in brightly colored costumes, the woman wearing a greatcape which trailed many yards behind her. For a moment, you could not believe that one of these figures was you. You thought, almost frantically, to your-

self; but I don't look like this. For you were—beautiful. That is the only word for it.

You glanced at your companion who smiled warmly at you. The two of you, you knew, were mated. Thoughtfully, you fingered your clothing, noting that it had some of the qualities of silk and some of rubber, yet was neither. Bit by bit the multitude of impressions came to you—it was as if you had been asleep for a long time; you knew all about this world, but so full of the otherworld were you that you must think in terms of it.

This wide pathway beneath you—it was resilient to your step, giving your every motion a springiness most pleasing. The gently curving hills to the right of you that led to an expanse of white-sanded shore, the woodland to the left of you—you knew this scene well. In the distance you saw the shafts of buildings towering into the sky. The great height of them, you knew, was sheerly ornamental.

These were not the outskirts of the city; you were strolling in the city proper. How different from the cities of that otherworld where so long you had sojourned! The people of those cities had to go far away from the metropolis to get into expanses of hills or woodlands or seashores. True, they did have parks and beaches but these were always so crowded . . . Was there anything at all in this otherworld to correspond with what you saw about you? Only the visions of a few dreamers, and a feeble attempt in the general direction at something they called a World's Fair.

But you had been strolling long enough. You grasped your companion's hand, and indicated a colored block in the wide pavement, blocks which appeared at regular intervals. Without speaking, the two of you stepped upon it, and slowly it began to sink down beneath you, coming to rest at last in a great subterranean cavern, quietly lit, completely air conditioned. A single open car was there, one which seated two comfortably. You did not see any sign of wheels, or of any other locomotive power. However, as soon as the two of you were settled—it took a moment or so to fix the gratecage comfortably—the car began moving rapidly, the cool air streaming your hair pleasantly.

place. The great shafts of what seemed to be several distinct buildings arose around you, although you knew that this was really but one construction. However, you had not long to look around, for your companion suddenly grasped your arm and pointed upward. You looked and gasped.

For hovering in the air, near the top of the buildings was a creature fantastic beyond your wildest dreams. Huge it was, and you thought of a titanic jellyfish and a titanic plant, and discarded both for the creature was neither. The spread of its hood must have been some thirty feet, while the many hair-like tentacles of it were easily twice that in extent. Jet black it was, devoid of any marking; it floated there, as atop the crest of sea-waves, rising and falling softly in the air-currents.

You were astonished, but you were not afraid. Deep in your brain, something tinkled, almost bell-like, then impressions began to come to you. They were not in the form of words, or even ideas, or then again definite images. Yet, you understood.

The creature was telling you, in its own manner, that it meant no harm, that it came to you for help. It wanted you to accompany it to a far place; it promised that no danger, so far as it knew, awaited you there.

And you assented. It was the very keynote of this society in which you lived that none who came to you for help could be denied. For man, in this remote day, had extended his reach far into the very depths of creation itself and many were the strange and alien beings known to him. Emblazoned in the great central hall of the planet, where regularly all humans within reach met to engage in a common pooling of consciousness, was the legend you had learned as early in life as you could recall.

"So long as the race endures, thus long shall mankind extend its hand to help any other beings who seek our aid. No creature shall perish; no star shall fall if it be within our power to set aside the danger."

You assented, even as you wondered how you would help this creature, wondered through what means you would bridge the stellar void. In this otherworld where you had sojourned so long as partially, it seemed, to forget your own world, men had dreamed of crude reaction ships for the purposes of leaping from Earth to her satellite. And some there were who dreamed of greater ships reaching farther

YOU emerged from the car to find yourself in a large courtyard sort of

distances, but all were greatly limited in their dreams.

While you were pondering, your hand stole to the wide belt you wore and touched a stud thereon, even as your companion performed the same act. You felt a slight exhilaration, and sensed that some apparatus on your shoulders, which you had assumed to be decorative, was operating. Then it was that you realized the ground was falling away from you and you were rising, soaring upward to meet the alien being.

The being's tentacles touched you and lifted you up to its great hood where a smaller membrane wrapped itself about you. You knew this was merely to secure you, to keep you from floating away into the void. For you knew now that this was a space-dweller, a creature whose natural habitat was space itself, knew that it could plunge through the starry gulf at speeds greater than light; nor did this knowledge disturb you, for man had long known, in this world, of motions and velocities exceeding light.

For the veriest fragment of an instant you felt alarmed, for how could you live in the sickle, heatless deeps between worlds. But even as these thoughts came to you, your greater knowledge had dispelled them. Swiftly your body became inert, your breath stopped, your heart ceased, and, so far as could be observed, your brain had ceased to function. Yet this was not entirely so, for in the core of your mind remained one little spark which would keep burning so long as your body were not totally destroyed.

And, back on Earth, in the great central building, within the indescribable complications of a titanic machine, a connection was made. A great eye trained itself upon you and your steed, recording your journey. And a great brain trained itself upon the spark that remained burning in the core of your being, receiving impressions no less perfectly than did your own brain when awake.

IT WAS not until you had returned to Earth, and your full individual consciousness had been restored that you knew what occurred after you and the alien one had departed from Earth. You sat in the great hall, with all available members of the race to see records of this exploit, and

you were no less a new spectator to these scenes than they.

You saw the creature, your mate, and yourself plunging through the deeps of space to come at last to a small star, long dead. It was about the size of the moon. At one time, you knew, it had been a luminary, even as your own sun; then, as it cooled, it had supported life, even as a planet, until, finally, devoid of atmosphere and light, it now drifted aimlessly in the void, dark and lifeless.

You saw the space-creature, to whom the plunge into Earth's atmosphere had been as a man's plunge to the bottom of a deep lake to retrieve an object, finally come to rest on its surface, saw there a large group of similar creatures. And there, on the harrow surface of the star, was a great building. Not only tall was it, but spread out, and the architecture was such that it suggested human construction.

These creatures, you knew, regarded this building with a sort of reverence.

You entered the building, along with the creature who had borne you here, and found it to be a titanic planetarium. Here was a miniature solar system, though not the solar system of the sun you knew. There was a central group of suns, and a family of planets and satellites, moving in many different planes, unlike the orbits of your own sun's family.

Trained on one of the central suns was what you at once recognized as a gigantic microscope. You peered into it and were amazed to find that there were living creatures on this little miniature, which could not have been more than twenty feet in diameter. For some time you gazed at them, fascinated, even though you, yourself, were not aware of the fact then. And you saw further that the space-creatures regarded this miniature as a special sort of deity.

Now the space-creature was indicating what had happened. One of the moons had somehow broken away from its orbit and was heading for this sun. Eventually it would crash into the larger body, and the creatures feared that the life upon their revered star would be destroyed.

No less than you were your fellow humans in the great hall on Earth, watching the scene, moved by this, for the beings who lived upon this miniature world were very similar to humans. You now beheld

yourselves examining the mechanism which kept these artificial worlds in motion, far above the planetarium's floor, finding at last a plan of the construction. Examining this plan carefully, checking with the plan against the controls, at last you found how to avert the catastrophe. By shutting off the motive power of this moon which had gone astray, it would settle slowly to the floor and all would be well. Since the whole system revolved according to plan, and individual power-leads, rather than gravitation, there would be no upset in the orbits of the other little worlds.

And, as the space-creatures hovered around you excitedly, you shut off the individual power-lead and the moon, even now dangerously close to the great sphere, slowly dropped to the floor of the huge building, idly rolling along until at last it came to rest.

NOW that the danger was averted, you went back to the microscope to examine more carefully the sphere your actions had saved and the life upon it. A strange little world, indeed, it was, and a strange people, so much like humans in form, even for their stalk-eyes, their flower-like heads, and a third arm projecting from the center of their bodies.

Then the screen in the great chamber went blank as the being who had brought you to the dark star prepared to return you to your home planet.

What was the purpose of this great planetarium? Why had no other buildings been observed on the dark star? Who had built the planetarium and what had become of them? How had life occurred upon

this central sun-sphere? Had life also occurred on other of the minispheres? These were but a few of the questions that arose.

Before the meeting had dispersed, an expedition to go to the dark star had been formed and you and your mate had volunteered to make a study of the space-creatures for the central archives of the race.

You and your mate left the great central hall of Earth to prepare for the expedition, which would start in a few days. You retired to an abode of your own by the shore, leaving notices to all that you were not to be disturbed, for you wished to be alone together for a time before undertaking this new task.

It was at this point that you awoke, suddenly, to find yourself in a darkened room. What had happened? Where was your mate? What were you doing in this strange place?

Then you knew. Yet, even as realization came to you, there came also the certainty that this was not merely a dream, such as humans experience almost at any period of sleep. You knew that this was real, that you had lived a small part of the future, a future wherein you dwelt.

You could not forget this, you told yourself. It was all far too vivid and beautiful ever to forget. You wanted to set it down in writing at that very moment, but it was so pleasant lying there and thinking about it. Perhaps just a few notes would do. Besides, there was nothing to worry about; you knew you could never forget it. So you lay back, smiling to yourself, until at last sleep claimed you again.

Remember?

TARRANO the CONQUEROR

Ray Cummings' Most Famous Novel

COMPLETE in NO. 4

Science Fiction Quarterly

ON ALL STANDS

STATION X

The Ayes and Noes of Fandom

(You are invited to send your letters of comment upon FUTURE FICTION, and science fiction in general, for publication in this department, to FUTURE FICTION, 60 Hudson Street, New York City.)

Hugh Ho, Readers. Putting Future together is a lot like piecing a jigsaw puzzle, only in this case all the pieces do not necessarily fit into a given unit. We still recall the chagrin we felt when, after having to cut Lee Crouche's story out of the August book, we found that we'd forgotten to cut the introduction out, too. Well, the old saying "It's an ill wind . . ." applies here because, since we showed it ahead, we found that we could fit in an illustration for it by our new artist, Damon Knight. So everyone should be happy on that score.

That leads up to the introductions for this time. Starting off, we see our old friend Ray Cummings with his most famous "Tub-by" story. You'd never guess, we think, that it was written back in 1923 if you didn't know it was a reprint. And we suspect that if we hadn't just told you the date, you'd think it was no earlier a vintage than 1930. We think that was the sort of thing Morley was driving at when he spoke of timeless stories, some time back.

Fred Kummer, Jr., is very much of an all-around writer. His science-fiction stories have appeared in nearly every magazine of that nature going, nor is this his first appearance in Future. We've met fans who swear by Kummer and fans who swear at Kummer—that's the kind of stories he writes: they don't just leave you indifferent. This story, we think, will put you into the first above-mentioned type.

Just in case you didn't get the August Future (if you didn't, you can still get one by sending fifteen cents to the publisher's address—some place to which you are invited to send your letters on this issue—and merely asking for it) we'll repeat that Leslie F. Crouche is a Canadian, who's sold a number of tales for Canadian magazines, and this is his debut in an American sci MAG.

A number of readers have suggested that we use a bit of scientific fantasy. That is, fantasy which doesn't lean toward the supernatural side, but merely the great unknown and the super-physical, leaving the outlet for some sort of scientific explanation. So here is Paul Dennis Levene's like fantasy, "Something from Beyond." The drawing is symbolic, rather than actually illustrating a scene.

And Morley contributes the cover story, a tale which we think you will find unusual to say the least. Morley reports, by the by, that the Handrenatch Club is coming along very nicely, the newest members being Jimmy Wilson, of Wyoming, and Lillian Lorraine of Texas. That's their order of joining.

Artists this issue include Hennes Bok—whose cover for "Pogo Planet" brought down the house—on the cover, and interior for

"No Star Shall Fall," B. I. Dolgov, whom we hope to use as a cover-artist some day, John H. Fests, another cover-man—we'll repeat him, too—and Damon Knight. Damon the Demon, as he is called by those who know him, recently saw the error of his ways and came to live in New York; once here we pounced upon him and put him to work drawing pictures. And if you like able example, he has plenty more up his sleeve.

You'll all be wanting to know about the "A Million Yenis and a Day" contest, so here's the dope. Winners are (1) Basil Wells, Box 12, Springboro, Penna., (2) Bob Studley, 210 West 11th St., New York City, and (3) Carl G. Bishop, 418 Central Avenue, Williamsburg, West Virginia. These winners received the Paul double-spread, Forte full-page and Forte half-page originals respectively. Three contestants came close enough to winning to be listed as drawers of honorable mention: Isaac Antzmer, of Brooklyn, Virginia Combs of Cranston, Wisconsin, and J. V. Daniel of New York City. Mr. Woods and your editor were the judges.

As for the contest winner this time, the writer of what readers thought to be the most interesting letter in the October Future—there haven't been many votes, but Antony Dirks is clearly ahead. So, Tony, it's the Bok original for "Man on the Meteor" for you, and let's see if you can repeat against the competition.

Now for a word about the Quarterly. Science Fiction Quarterly, we call it, and not only does it look neat and natty, with its 144 trimmed pages of first-rate science fiction, sans advertising, but it features an outstanding science fiction novel in each issue. This time, it's Ray Cummings' immediate "Turrano, the Conqueror," which gets the Paul cover, and has an interior double-spread by Bok. Also in this Summer issue are "Hush Does Not Reply," by Lawrence Woods, (illustration by Dolbaker), "The World on the Edge of the Universe," by Martin Perrowe, (illustration by Bok), and "Path of Empire," by Hugh Raymond, (illustration by Dolbaker). Dolbaker, as some of you recall, is Hennes Bok and B. I. Dolgov working in collaboration; these are the first Dolbaker drawings to be published and they aren't half bad, readers tell us. As a rule, the Quarterly gives more than three short stories per issue, but "Turrano" is quite a long story and we knew you'd prefer to see fewer short tales than to have this famous novel cut. So, if you haven't a copy, may we suggest that you sound out your newsdealer right away. If he's sold out, then you may obtain a copy by sending twenty-five cents to this office and asking for the Summer Quarterly. However, if

you hurry, that extra wait may yet be saved.

So, on with the show, and we start in with the winning entries from the "Million Years and a Day" contest. The first prize winner put his entry in the form of a continuation of the story. So, here is

BASIL WELLS

David started toward her, horror and doubt battling for mastery in his eyes. Had his wife doomed the world to resumed conflict that might hurt all mankind back into barbaric chaos, or had she chosen to wipe out the last of humanity—leaving but two of them alive? He swept the back of his hand across his eyes as though to blot out what he must see.

Janice was smiling as she came slowly to him and ran slim fingers through his rumpled hair.

"Had you forgotten that these controls operate only the broadcasting units in the Old World?" she whispered. "I pressed the buttons that renewed the vibrations—but only over half the world! The Old World is dead but the New World sleeps!"

"When we reach the controls in the Old World we can restore the sleepers to life again and there will be no war. Half a world is dead—true—but the younger, more progressive civilization of the New World will live on . . . our people, David!"

BOB STUDLEY

So you want to know what buttons Janice pressed, do you? Why, that's simple. Being in love with David and not wanting to take a chance of losing him to any possible future rival, she pressed the buttons renewing the sleep-vibration and they lived happily ever after.

CARL G. BISHOP

The finish to the story "A Million Years and a Day" is very obvious. Janice pressed the buttons which renewed the life in the Old World because in doing this, she had the solution of the way to avoid both the annihilation of the human race and war and bloodshed.

The Old World would awaken and would do as the New World had intended! Janice knew that to kill all the human race save David and herself would only have thrown back the evolution of the world a million years and destroyed all they had ever accomplished. She and David could have renewed the race but could not have lived long enough to teach them the knowledge they should have had; when they died the world would have reverted to a savage state and all the arts and sciences would have been lost.

Some might say that Janice did not renew the sleep-vibration because in so doing she would have put David and herself to sleep also, but from the information derived from this story, this was impossible: the vibration affected only those in the opposite phase from which it was operated. (It's amazing how many contestants overlooked this point, Editor.)

Janice and David could have awakened both the Old and the New Worlds at the same time, but each one having the sleep-vibration, they would have slain each other and would have reverted to more primitive weapons in the attempt to conquer each other. What Janice did resulted in the tables being turned on the New World, but this was

the only true bloodless solution she could effect.

(Thus the contest closes, and we thank all readers who took the time to make it interesting for all by writing in. Sorry you all couldn't win, but there's still a chance for you on the current contest. Each issue, Future will send the original double-sized illustration to the writer of what the other readers, by their votes, decide to be the most interesting letter in Station X. Your vote must accompany a letter of critical comment upon Future, Editor.)

Now let's hear from

F. SCHUTLER MILLER

The "different" quality of Herman Sok's cover struck me as soon as I went into the news room this week, and completely justified your trying him with color work. It at once set the magazine off from the other science fiction in the rack. His distinctive style will be a good trade mark for Future, as Paul's was for the old "Amazing," back in 1934 and '35.

The second surprise was seeing Cummings' "Man on the Meteor," for thereby hangs my own introduction to science fiction. I had bathed, practically, on some of Jules Verne's books—"Mysterious Island," "20,000 Leagues Under the Sea," and "Five Weeks in a Balloon," though not his more extravagant works—but being isolated on a farm, had seen nothing else, unless you rate Tom Swift as an introduction to the boy mania of modern science fiction.

Then, one Saturday, just before coming to Scotia to enter high school, the Miller family went to town for the week's groceries. I was given a quarter for lunch, and started off to get it, but en route I saw Paul's portrait of a Martian on the cover of Science and Invention—and went without lunch. "The Man on the Meteor" was well under way—the third or fourth part, I think—in that issue, and it was my introduction to Cummings and to modern science fiction. But until now I have never known how the story started—and I am not disappointed. It follows the Cummings formula, true, but it is the strangest of all his tales, and I miss only the many historic illustrations by Paul which decorated the original serial. In 1935 I was anxiously waiting for "Amazing Stories" to appear, and I have not missed an issue of any science fiction magazine, although I am months behind on my reading and have been using this summer to catch up.

"Out of Nowhere" seemed to me the best of the short stories, although "Pogo Planet" had its tiny points, particularly in the character of its hero. The tragedy of "Forbidden Flight" seemed a bit forced and flimsy, but it is hard to make convincing at best. And Sok, whom I disliked on his first appearance, is definitely something. It is probably a quibble to object to Saturn's appearing in sets as viewed from a point beyond and well below the rings, when the story definitely places Neme's meteor in the rings themselves, and such quibbles on points of fact seem to have gone out of fashion of recent years as more and more fantasy has shared the bed of science fiction. I don't object to the combination, but I do hate to see the bare let down on science—and Future is far from the worst offender in this respect. I could point to a number of publishers who hoot louder about their accuracy and offend with more nonsense than those who go quietly

about the business of printing good stories when and where they can find them.

Incidentally, thanks for publishing a quarterly that is really a quarterly. I don't object to reprints of good stories, plainly labelled as such, though in a general science fiction magazine I feel they should alternate with modern stuff, and when new illustrations are used for the reprint, I gladly buy it, no matter how many other versions I have (always the perfect collector, you see). But I do object to some things which have happened in the name of being quarterlies and am willing to say so loudly whenever pressed.

I think you're wise in combining; there are too many science fiction and fantasy magazines. The result has been to make authors lazy; they will aim at the highest paying, and the harassed editor who is short a big fiction budget must buy reprints or develop new authors, which is an unwise and nerve-racking business. I am sure I have been doing some editing in connection with my job and know how it feels—and with you a deadline is a deadline, and not something that will stretch when pushed.

If I ever do get to producing, I hope I can land a yarn with you some time, if for no other reason than to see what your artists make of the illustration. An author looks at his own story in a very different light when it is decorated (or occasionally marred) by an artist's conception of scenes he has described.

At any rate, good luck and nice Bok covers.

Scotia, New York.

Your last paragraph reads very nicely to us, Mr. Miller, because we've been one of your fans since the days of "The Red Plague," "Dust of Destruction," and "Through the Vibrations," your earliest appearing stories. So we'll be looking for that tale, and have special hollyhops for Bok and/or Dodge if it's well and we can give it to an artist. In regard to scientific accuracy—we aren't so much hipped on the straight "educational" features of sci. and, while we don't want to present anything as a scientific fact which is not a scientific fact, still we're more interested in first-rate fiction, full of imaginative and "dreamlike" qualities than having every phase of every story "scientifically accurate." In regard to developing new authors, it is nerve-racking at times, but fun, little by little, we are bringing up a circle of Future's own writers, and, when they are way up, we suppose they'll be trying other markets, too—that's the way things are. But it'll be a real satisfaction, when that time comes, to know that they got their start with us. Thanks for the well wishes, and you'll see more Bok covers.

The gentlemen we now present may not be well known to all of you. He, along with another science fiction and fantasy author, recently brought out an anthology of the famous stories of the late H. P. Lovecraft, one of the finest writers of fantastic, weird, and weird-scientific tales that America has produced. But let's quote from the leaflet accompanying the letter: "Two years ago, Arkham House published H. P. Lovecraft's omnibus of classic weird tales, *The Outsider and Others* at \$5.00 the copy; most of you to whom this announcement is addressed know without any further word what a fine book that collection made. . . . Arkham House is considering the publication of compact full-length books of weird tales to sell at \$2 the copy. The first of these books is sched-

uled for publication October 1, 1941; it is 'Someone in the Dark,' sixteen weirds by August Derleth, a book containing what the author considers the best among his tales of the uncanny. If 'Someone in the Dark' is successful, i. e., pays the expense of publication, Arkham House will publish selections of weirds by Clark Ashton Smith, Henry S. Whitehead, and others." So, readers, here is

AUGUST W. DERLETH

The leaflet is the bearer of potential good news—if fandom co-operates. If we, as Arkham House, can sell only 100 copies of such books, printed at \$2 the copy, we plan to publish the best shorts of Merritt, C. A. Smith, Whitehead, Hugh, Kuttner, etc., autographies, etc., weird and science-fictional material at the rate of four books a year—all reprint material. He assured we want to do it, and "Someone in the Dark" is a feather in that direction; if that book sells well enough, we can go ahead with others in the list. I think Smith is down next. But the important thing to sell the fans is the necessity of their buying every book, as in a book club (and indeed, this is something like a book club) so that the books will move and pay for themselves. In short, it's a promise of a first rate fantasy library in a handy, beautiful, and expensive format that will match any book put out today—definitely out of the class of the average light fiction binding, for instance—on condition the fans trust our judgment to bring out the books they want. We're open to suggestion; we're not going into this thing to make money, but only to break even. Will you do what you can to further this plan, and also let me know what you, yourself think of it?

Re your editorial in the new FF—most of us, Lovecraft et al, that is, have always felt that fantasy covers the entire field of the weird on one hand, and on the other, though pure fantasy in literature is the work of Stephens, Dunsmuir, et al, far removed from sf, and much closer to the weird.

Sauk City, Wisconsin.

We don't think it's necessary to urge that fans support this venture—all who received "The Outsider and Others" know what a splendid job of printing and binding was done. We do wish to suggest, however, that all interested take time off to let Mr. Derleth know which stories of Clark Ashton Smith, who is next on the list, they would like to see in a volume of his stories. Readers can also help by nominating stories for inclusion in an anthology of weird tales, of fantasy, and of science fiction. And Mr. Derleth might be interested in suggestions for a volume or two of the best stories of favorite science-fiction writers . . . or of reprints of outstanding science-fiction novels which may have seen print but gone in some magazine now difficult, or virtually impossible, to obtain.

The idea of a fantasy book club appeals to us very highly; if enough fans were to write Mr. Derleth pledging membership and a minimum annual support, it might be worked out. In the meantime, Future will be happy to keep you posted on latest developments. Watch our department, Futurian Times.

This one is short and sour. The writer is

A. L. SCHWARTZ

Engel is not a house. You are. What the hell is the idea of using small type? Ainslie got no consideration for our eyes?

Incidentally yours,

333 Washington Street, Dorchester, Mass.

Matter of fact, Mr. Schwartz, you are the only one, so far, who's complained about our new size type, while we've received a number of very nice compliments on it. Suppose you see if you can find a few thousand Futura readers who agree with you, then we may be able to do something about it. Though, personally, we think it's pretty snappy. Now, we present

EARL BARR HANSON

Congrats on the latest Science Fiction Quarterly and especially the October Futura. Evidently you have access to the old Science and Invention files. If able, how about reprinting McClure's "Ack of the Covenant," Mazzanti's "Doctor Hackensaw's Secrets" (as a series), Cummings' "Around the Universe" (it's here, Editor), John Martin Leary's "The Living Death," Cummings' "Into the Fourth Dimension" (almost forgotten) and some of his "Tales of the Scientific Club."

Your fine new illustrations bring new zest to the old classics.

818 SW 1st Street, Miami, Florida.
We'll look up those suggested reprint stories. However, we're happy to say that we beat you to the draw on "Around the Universe" and—well, we may as well announce it now—The Quarterly's feature is to be "Into the Fourth Dimension."

Now, here's a frank letter from

J. S. KLIMARIS

Every once in a while sheer desperation forces us to go tramping to the nearest newsstand to buy up the current crop of "science" fiction in the hope of finding something readably entertaining. August Futura Fiction, alas, was there too.

Well, let's see what the record is. Foster's cover, very good. Must be a hangover from 1937, but the sight of winged rockets bombing a many-colored city still gets me.

As for the featured "novel," "They Never Come Back"—much could be said, but the less said the better. Nowadays one can't be too particular about making a living, and if Fritz Leiber makes a living dishing out such monstrous dung, who am I to tell him what to do? All I can do is fervently pray that in the next issue ye editor find something that someone who's passed his seventh birthday can read.

"Topsy Gate" was another stinker. "The story is so significantly parallel to Earthly history." How! Mr. Blisk is a humorist as well! But, like in the movies, I'm afraid that "any resemblance is purely accidental." Let's dismiss any comment upon the overly trite "power-mad ex-plumber" and the golden qualities of the belated monarch, and, without another word, toss Mr. Blisk to the anxious and hungry bees.

But cheer up, Mr. Editor, there are one or two things to commend you for. After all, in every editor's life, a little rain of acid must fall.

If you expected only a little circulation-increase treat on the end of the "Million Years and a Day" line, I'm afraid that you've cooped a pretty big whale. The idea of science fiction from readers is a whopper. If you guarantee something similar in every issue, editor, I promise to buy every damn issue no matter how god awful the rest of the stories are. I spent half the night trying to figure out which buttons to press, to no avail. So instead of mauling in my entry, I think I'll let some other worthy gentleman take the prize. Bravo, editor!

Morrison's "The Barbarians" was not only good reading but pretty interesting reading at that. I rate it the best story in the issue. If Morrison can duplicate it in quality, let's see some more of his stuff. Who's the gent, by the way?

Searle's "Shadowless World" is an example of a fellow who tosses away diamonds in order to pick up a piece of wood underneath. He had a whale of a good story in the idea of Karyno being responsible for the development of the world. But instead of using it, he drowns it in a pile of nonsense about a millionaire playboy who's a genius in disguise. Why don't scientific writers learn to write? Why doesn't someone send them back to college to learn what makes a story—it might do some good, who knows?

Your editorial on the weird and the fantastic was very good. Having defined science fiction, all that remains, Mr. Editor, is for you to explain it to your writers—perhaps we may see some good scientific fiction, then, in the not-too-distant future.

After filling up a page, Mr. Morley finally comes to the conclusion that the test of a science fiction classic is its modernity. Well, well, well! Now, Mr. Morley, just what the hell is a "modern outlook"?

"What type of writing has survived through the ages?" asks Mr. Morley, and then "Excluded from this category all those items of classic fame which were stuffed down your throat during school days and which you privately and frankly thought to be epitaphs of utter boredom."

What ardent nonsense!

Excluded Shakespeare? Goldsmith? Gray? Forget all about Stevenson? Poe? Scott? Tolstoy? What sort of hell is this Morley throwing? Is he serious?

The fault, dear Wilfred, was not in the classics which bored you when you studied them, but perhaps in your own inability to understand them at that time, or in the inability of your teachers to make them palatable to you.

Science fiction can become classic only when it becomes living literature. And literature, dear Morley, is alive when it is an emotional expression of human experience or human aspiration. Science fiction can become living literature when it fulfills that requirement. What true science fiction reader has not wept with Mary Shelley's monster that tried to win the love and understanding of Dr. Frankenstein? Who has not felt a lump in his throat as Nemo's Nautilus finally sank beneath the waves after defying mankind and twenty thousand leagues under the sea? Who has not looked unwearying up at the strange stars after the War of the Worlds ended? Who has been able to sail calmly over a quiet sea after Poe's "Descent into a Macabre"? Who among us is not a Faust or a Manfred?

In the light of such living literature, and they are also science fiction classics, Morley's words about "modern outlook" fade away into nothingness.

48 Ten Eyck Street, Brooklyn, New York.

We really appreciate your criticism, Mr. Klimaris, and will wait eagerly to see if current selections come closer to your idea of good reading. Looks as if a controversy has been started over Morley's article, so we'll let him speak for himself. Here he is, Mr. Klimaris.

WILFRED OWEN MORLEY

It would seem as if I didn't have a leg to stand on, but I really think that the main

difficulty lies in the interpretation of my phrase "modern outlook" and readily admit that a better one should and could have been used. Perhaps "universal," "timeless," or "progressive" would have been better.

First of all, just for your private edification, Mr. Kilmarris, I was by no means bored by Shakespeare, Stevenson, Scott, etc., when we studied them in school. Nor, unless they were all consummate actors, were the majority of the classes in which I studied, and they were a very good cross-section of a large town, too. We acted out Shakespeare's "MacBeth," "Julius Caesar," etc., in the course of studying (let's not talk about the quality of the interpretation!) and so far as I know, English Lit. was one period which never lasted long enough for us.

Most there are a good many works, labelled "classics" by pedants, and often run in on otherwise innocent students, which are unutterably dull—and likely as not, the aftermath of these is enough to make the hapless student flinch at the name "classics." It was this sort of thing at which I was driving in the sentence which you dissected with such precision.

These stories which you mention in your last paragraph all have the "timeless" quality to which I refer. They are not bound up in the very local and limited concepts of any given period, even though the writing may, in some cases, be archaic. What I meant by "modern outlook" was that I read any of these examples of "living literature" and you do not get the feeling of being cramped into the obsolete concepts, superstitious, concepts, etc., of a long-dead age. There is something in them that will be new and "modern" as long as homo sapiens remains as he is, essentially. You letter admirably gives the substance of what I thought I was saying, and I appreciate your successful presentation of the subject, even if it does show up my enormous failure to put it across.

Here's hoping I'll see many more of your stimulating letters in Station X. Oh yes, and here's an aside to you, Mr. Editor. Would you just see soon not publish my address? I haven't the time for correspondence.

New York City

Okay, Morley, old fellow. We'll await remarks from Kinnear on your answer. And now, on to

WILLIAM H. CHASE

As for the most sensitive letter in the current (Oct.) issue of *Future*, I think Antony Birkin's takes my vote. He seems to know what he wants and to have a mind of his own. I like that. Being a female of voting age itself, I have very definite ideas myself.

I liked this issue of *Future* a great deal. "Man on the Mirror" is one of the best by Ray Cummings that I have read in a long time. Nor that Mr. Cummings does not always do a good job, but I just can't read his stories alone, and there are others that stand out in my memory and arouse the fondest recollections long afterwards. "Across the Ages" ranked second . . . good yarn . . . I liked those descriptions of Mars. Station X comes next . . . heck, it's better than the others stories. (All Editors.)

The others deserve no more than numerical ratings. 4. "The Thought Feeders" . . . worth reading, odd idea. Fair. 3. "Forbidden Flight" . . . I must say Constant got rid of 'em in a hurry. It had the bitter irony of truth. 4. "Fog Planet" . . . I have four brothers, so I have no illusions about them.

as wear the pants. Emperor Aja is as damned typical of convicted masculinity that I almost liked him. Y. "Out of Nowhere" . . . I hesitated a long time before ruling this best, but somehow I liked the others better. But it's good.

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Futurist Times rates as interesting, but I don't care for it overmuch. Still, I think such a department is necessary . . . and this is the best of its type I've run across yet.

Back on the cover. AHHHHHHHHHHHHH! Turn, turn. How does he do it? Turn out such delectable pix all the time. I mean, (We feed him regularly on Futurian Chop Suey. That stimulates his imagination. Ed-Note.) John Forte displays a refreshing clearness of drawing that makes him outstanding. Let's have lots more of him, too.

Dolgov and Bak together are swell, some way by themselves, but together, it's like having ice-cream and watermelon for one meal!

Bob Sol, Cranston, Wisconsin

Maybe we're more than usually dense today, but haven't you sort of contradicted yourself? You say that, outside of the first two mentioned, the rest of the stories deserve no more than numerical rating, but the comments you made on each, going so far as to rate the best of them good, somewhat belie that.

However, we won't be anywhere near satisfied until a majority of readers write in and tell us that the best-ranking story was excellent. And that means a long, hard pol-
lshed for authors and editor alike.

Incidentally, we forgot to include a P.S. on Morley's letter, but it can go here just as well. He says: "Pardon the conceit, but, just in case it may be justified, please tell readers that I'm not in the competition for the prize double-spread drawing this time, or any other time."

And, to bring up another side-issue, we notice that, here and there we have made what appear some rather definite statements upon various authors and stories. These are just our opinions, subject to change on any number of fronts, your desires being one of them. We are not out to squish any reader or to try to impress our opinions upon you, as if you disagree with anything we say, don't hesitate to come back with both barrels. We'll publish your rebuttal if possible. Come now a letter from

PLANNED REPORT

Figure 1 consists of two bar charts. The left chart shows the percentage of respondents for 'All respondents' and 'Non-respondents'. The right chart shows the percentage of respondents for 'All respondents' and 'Non-respondents'.

of the same type as the one in the previous section.

Score 10 on the October Future's arriving. The Bok cover is definitely super, and the illustrations on the whole follow suit. I don't think it's an exaggeration to say that *you* are now the best-illustrated sci magazine currently published.

Score 18 again for the editorial, blurb, and department. As I've said before, these leave nothing to be asked.

Know what are the stories

"The Map on the Meteor" is a bad Cummings tale, than which there is conceivably no worse. Plot, characterization, and style are pure megacornum—unadulterated hack.

"The Thought Feeders" is quite; style and characterization are good, but the plot, as with much of Winifred's work, annoys because of its harshly strained metaphysical reasonings. 5.

"Fare Planet" is best for the book—any of

the two completely acceptable stories in the issue—not such a good betting average, with the Cummings stinker filling up well over half of the space. Ajax Calkins is a very winning character, and I'm looking forward to the next in the series. 14.

"Across the Ages" smells up the nose, in its own way, even worse than "The Man on the Meteor." It is a fairly good fantasy story, but clogged over with phony scientific explanations to make it read like sci. This anomaly is one which I abhor. 1.

"Out of Nowhere" is the other completely acceptable story. In any other company, I suspect, it would be just an average yarn, but in Future it stands out head and shoulders. 5.

"Forbidden Flight" is bad only because it is incomplete. It poses a question to which no answer, or even the suggestion of an answer, is given. An incident in a longer story, it would have been perfect. 3.

Totalling up, you get 58 out of a possible 80 for the issue. Roughly, 75%. That's with the Cummings thing figured as one unit. Figured as it really ought to be, as something like five units out of twelve, it drags down the average unthinkably.

But despair not, Lowmides, we still love you!

141 West 104th Street, New York City.

Well, Damon, you're rather unique in your comments in that, to date, you are one of the two persons writing in who did not place "Man on the Meteor" first in the October Future, and the only one writing in to express dislike. We've heard personally from several people who thought "Pogo Planet" was best, but they gave the Cummings tal-top rating, too.

This doesn't necessarily mean you're wrong, old thing, but that, so far as we can ascertain, the readers do not agree with you. So it's more Cummings this time, and still more in our next issue. You mention Winterbotham's plots as being fraught with "hardbained metaphysical reasoning." Now, I'd like very much to have a bit of a discussion on that point, and maybe Mr. Winterbotham would like to make a few statements, too (all in the nature of good-natured debate). But we can't do this until you present your case more clearly: how do you define "metaphysical reasoning"? Do you mean that metaphysical reasoning, in itself, is "hardbained"? Or is it just Mr. Winterbotham's use of metaphysical reasoning which appears to you to be at fault? How's about a letter, Sir Knight, so we can get off onto the trolley?

Thanks for your remarks, at any rate, and, as a sort of wind-up of this broadcast, we present

GRAHAM CONWAY

Editor, Q&A Back:—

I confess I'm stumped. The new Future is good! Swells, it's true. It's actually readable all the way through! It's actually something a decent person wouldn't be ashamed

to be seen with in public. The new title is very good, dignified, and yet just what it takes. Bok on the cover is a big jump from Scott, Fortis, and even, in a way, Paul.

Ray Cummings' yarn was a pleasure. I'd never read it before and I'd bet only one out of five thousand readers ever had, either. It's not in the Cummings rut. It's different; it's unique; hooray! Although I strongly disapprove of reprinting old stories, in this case I can allow it. Don't think reprinting is fair either to writers or reader and hope you don't make it a habit.

"Pogo Planet" was a winner. A Superman to end all supermen! And what's more, Ajax Calkins is a pretty good commentary on the Richard Dentons and Adam Links floating around, too. Ajax is just honest about what he thinks he is. More of him! "Out of Nowhere" came next, followed by Winterbotham, who is doing good stuff for you. The Conant story was pretty feeble, jerkily written, and going nowhere. This Don Passante thing must have been a hangover from the old smelly days. But even at that, its stench is less than the old Passante the garbage cans are familiar with.

Your art work is now near tops. Keep up the improvement and maybe you'll have a top-ranker magazine yet!

Waterloo, Indiana.

This, as you readers can surmise, is pretty much of a shock. In fact, we are virtually speechless. So, we shall just thank you, Mr. Conway, for your kind words, gird up our loins, and put our nose back to the grindstone.

Just one word more, we've found that, after we'd very carefully listed ratings of stories for this department, and sent it off to the printer, a whole new batch of letters would come in, on the strength of which ratings would be shifted all around. And, due to circumstances, there haven't been opportunities, the last two issues, to shove in a final, corrected list at the last minute. So, this time, we're not reporing on the October book: we'll give you the dope on that next issue. And, just for the records, here's how the contents of our April and August issues eventually came out.

April: 1. A Prince of Pluto, 2. The Madiant Avenger, 3. Martian Guns, 4. Status Quo, 5. 14th Century Duel, and 6. The Genius Bureau.

August: 1. The Barbarians, 2. The Shadowless World, 3. The Time Maker, 4. A Million Years and a Day, 5. The Sixes Men of Janota, 6. The Topaz Gate, and 7. They Never Come Back.

Spring Quarterly: 1. Weapon Out of Time, 2. Callahan Tomb, 3. Cosmos Kps, 4. The Life Jewel, 5. Rocket's Swan Song, 6. Fomtown, Mars and 7. Rescue From Venus.

Apologies to all concerned for the errors in the last listings. From now on, the polls will be closed only when the issue following the one in question has reached the newsstands. Thanks for all your fine letters, and happy reading to you! RWL.

HAVE YOU SEEN
CLOSE-UP? 10¢ AT ALL
STANDS

DESTINY WORLD

by MARTIN PEARSON

(Author of "Pogo Planet," "Cosmos Eye," etc.)

Is one defeat enough to discourage the greatest men the human race has produced? A thousand times no, declared Ajax Calkins. From the debacle of Pogo Planet he arose to write another page in the history of the cosmos.

I NEVER take no for an answer. When I made up my mind to become ruler of a planet of my own, I forged ahead relentlessly vowing not to halt until I had gained my way. Thus it was that my spaceship *Destiny II* eased itself through the tortuous paths of the asteroids towards my goal. Aurora! The world which was destined to be mine! Not a new world, an old one. But a planet over which the clutch of the Interplanetary Union had expired.

Of course the I. U. did not know that. That was why their sovereignty had expired. While the Union was primarily made up of the inhabited planets, and those other regions where colonial or commercial habitation had occurred, it also claimed rule over every region that I. U. patrols visited. But there was a strict order on these things—an old Terrestrial rule—and that was: if the I. U. failed to patrol a region in a reasonable number of years, it could not claim sovereignty there. In ancient times the Canadian government in North America had had to send police regularly to mosh over the barren regions of their far North. Not because there was anything to police, but merely to guarantee sovereignty.

And I had found that the planetoid Aurora had not been visited by the Interplanetary Patrol in thirty years! There were lots of tiny planetoids that had never been patrolled but Aurora was not a tiny fragment. It was a Grade B minor planet and at least 30 miles in diameter.

I have always been aware of my difference from other men. I am not content with an humble lot as one of teeming billions. Others of history have gained empires for themselves; I, Ajax Calkins, legitimate Emperor of Midplanet, was determined to regain a world for myself. What



mattered how small it may be? From little nuts, great trees do grow.

AT LAST my ship eased close to the world of my choosing. I stared hungrily through the forward plates of the control room. Hungry, as much for fame as for the fact that my meals were irregular due to my tendency towards space-sickness.

Down, through the void, and at last, landing with a slight jar upon the airless soil of my small world. I hastened to buckle on my space-suit and to hurry out the lock of my ship. My first eager step on the soil of Aurora and astonishedly I found myself flying head over heels upwards. The gravity of the planetoid was so light that I weighed a bare pound or two! And my tread had thrust me upwards with unexpected vigor.

Falling gently downwards like a lazy feather on a Spring breeze, I surveyed the landscape. It was cold and uninviting, mostly slag and bare rock. Above, the cold stars shone down in the black sky of space. But all over on the surface there arose orderly hemispheres of glistening brown glass!

I was startled! Pinsky's "Catalogue of Minor Bodies" distinctly listed Aurora as an uninhabited world! How then could this be? Pinsky was over wrong; yet, these artificial glassine hemispheres, between which ran thin glassy roads, gave all the appearance of being those of a highly advanced culture.

At last I reached the ground. This time I took great care to orient myself and adjust my belt-rockets. Under control now, I shot rapidly across to the nearest structure.

It towered over me some thirty or forty feet; it was smooth, perfectly finished, stone-glassy. Around it and from it ran roads, straight as dies, in all directions. And down several of them came the inhabitants.

They were squat, slow-moving creatures, about the size of a big dog. They seemed to be hard shelled like insects and yet they lacked the intricate designing of insects. They were like crude unfinished models for ants. In place of legs they moved along on which seemed dozens of cilia extending a few inches beneath their bodies. I could detect no eyes, no mouth or nostrils. A single pair of antennae stuck

out in front of them and jerked steadily up and down as they progressed.

I braced myself and drew my para-ray preparing to fight if necessary. But the one that was closest to me, passed along the road by which I was standing without paying me any attention and passed into the hemisphere through a round opening.

I stared after it, dumbfounded, until I remembered that they had no eyes or ears. Because I am unusually brave, I followed the creature into the dome.

INSIDE a thin reddish light filtered down. There was still no air. There were no rooms, no furnishings save curious piles of greenish glass cubes. The creatures moved about on the polished floor, bumping into each other with a curious rhythmic pattern. I poked one; it paid no heed to me. I pushed another, it was undisturbed. Try as I might, I could not get any of the creatures to acknowledge my existence.

Then, like a flash, it came to me. These were not intelligent beings! These were silicon-insects! There were a number of asteroids inhabited by these curious beings. They were not protoplasmic oxygen-breathers as we are, but were of a living substance in which silicon takes the place of carbon which is the basis of Earthly life. They were literally rock-animals, made of a form of rock, eating and breathing rock! Their social structure was vaguely akin to that of ants, they had no intelligence, only an instinct-pattern which caused them to build these silicon-glass structures and roads.

What had misled me is that I had never heard of them growing to this size before. On other airless worlds where they had been found, their size was scarcely ever more than a few inches in length. Here they were gigantic by comparison.

Ignoring the creatures farther, I set out to explore Aurora. My first act was to stand in the center of the largest cluster of domes and proclaim myself King-Commander of Aurora. Although the insects ignored me, I felt it my duty to what was now my planet.

Returning to the *Destiny II*, I flew low over the small world, mapping out its terrain. It was covered with the silicon-creatures' cities. It would be impossible to land anywhere and not find them.

I made my permanent residence, my capital, at the place where I first landed. There I cleared away a deserted dome, and

transferred some of my belongings. In a few days I had sealed all the entrances but one and made it airtight. Air from the ship's tanks made it habitable.

IT WAS not comfortable but we empire builders must allow for discomfort. I, Ajax Calkins, had at last my own planet. From here I could advance to greater things.

So it was that I sat there several weeks later, on my throne (it had originally been a ship's barber-chair) listening to swinging records. I love swing-sung records; they were the rage on Earth when I had left and I had stacked several dozen of the marvelous music spools, composites of Occidental swing with Oriental tones and scales. I had just played my favorite "Razamatraz on the Gobi-Gobi" for the tenth time when I idly turned on the radio receiver of my player.

Instantly I heard the voice of Radio-Juno ("The Voice of the Asteroids") giving the latest news. Idly I listened to the reports of the latest events of the major asteroids when suddenly the name of Aurora was mentioned. I sat bolt upright.

Radio-Juno said that the Interplanetary Union was sending a small fleet of ships to establish a feeling and trade-control station on Aurora. On my Aurora! On my own planet! I, Ajax Calkins, King-Commander of Aurora! That, to me!

I sat stunned for a few minutes. I had not expected a showdown with the I. U. for a long time. But this now! I must think.

Then I had it! I knew how I could drive them away without risking a drop of blood. Hastily I gathered all my swing-sung records and counted them. There were enough for my defense; I set to work.

For three days I built tiny crystal player-broadcasters, little simple affairs made of wire and glassine crystals easily obtained. Each was equipped to play endlessly a spool of song record wire, but to play them backwards.

For three more days I rushed around the planetoid installing these players, each with its reversed record, in the center dome of its rock-ant cities. The rock-ants ignored me as they always did. Soon the entire planet was covered with the players, from every quadrant and pole, the reversed tunes were endlessly broadcasting.

At my capital, I rigged up a special

record and a large broadcaster of my own. Then I waited.

A short time later, Radio-Juno announced that the fleet had left for Aurora. I kept carefully searching the wave-bands for sound of the fleet's communications and finally I heard them. I listened in on the conversations between the various captains.

Already they were discussing the etheric disturbances that had increased as they came nearer Aurora. One remarked bow like it was to the radio increase you note as you approach a major planet. I smiled. My plan was working.

At last they hovered near Aurora, uncertain and confused. I knew what they were hearing. From every section of my little globe, broadcasts were coming. Weird, strange, incomprehensible voices and unearthly music.

DID you ever play a record backwards? Spoken English sounds like Hawaiian; gay tones sound like Gypsy laments; everything is unearthly and puzzling. That's what they heard. The sounds of a completely alien planet, densely populated, with innumerable radio conversations going on in totally unfamiliar patterns.

I heard one captain say to another that Aurora was supposed to be uninhabited and here it seemed that it was very heavily populated, totally outside of the Interplanetary Union. That was my cue.

I started my special record. On it I had recorded one part of a conversation in broken English in a deep harsh voice. To this conversation, I replied in as sinister a tone as I could. All this was broadcast outwards towards the fleet so that I could be sure to be overheard.

What the fleet commanders listened in on was a conversation between a supposed general of an unknown invading army from the star Pelaris and a leader of a hitherto unheard of band of Solar system pirates. The subject discussed was how Aurora had become the main base of a simply terrific army, of how that army was so much more powerful than anything the Interplanetary Union could offer and how completely fatal it would be for the I. U. to dare attack. It was quite terrifying and impressive. That was because I, Ajax Calkins, am a brilliantly ingenious man. No, let us not say man, let us say with an eye for scientific accuracy, superman.

It worked. It worked too well. The

I. U. fleet heard. The I. U. fleet fled without landing.

For the next few days I gloated over my triumph and proceeded therewith to establish and award myself the Order of the Shining Star of Aurora. Then I happened to listen in on Radio-Juno again.

The voice of the announcer said that the I. U. was not going to risk a ship. The voice said that the I. U. was simply going to move a couple of larger Grade C asteroids from their orbits so that they would suddenly and unexpectedly crash into Aurora from opposite sides. Aurora would be reduced to its component atoms in a fraction of a second after the impact and the menace of the terrible invader base completely annihilated before the enemy knew it was attacked.

I nearly jumped out of my skin when I heard that. My plan had worked too well. I had not merely scared the fleet away, I had overscared them. I had brought about the doom of Aurora!

I fled precipitately from my capital, not daring to rescue my property. Who knew when the planetoids would crash? I dashed

into my space-ship, slammed the air-lock and fired the rockets. Discretion was better than valor now.

As the *Destiny II* left Aurora behind, I stood facing the stars in my control room and, placing my right hand in the front of my jacket and my left hand behind me, stared ahead coldly into the black of space. Napoleon too, had had his defeats.

But like a Phoenix, I too would rise again. Destiny! Ah, destiny!

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"Great Cannon! It's . . . it's like a window into hell."

DAY OF THE TITANS

by **FREDERIC A. KUMMER, JR.**

(Author of "Day of the Comet," "Lancelot of Space," etc.)

Their one chance of rescue lay in the time-zone; through it they might find some sort of weapon against the hostile Titanians. But they didn't reckon upon plunging into a deeper mess than the one they had left behind them.

CHAPTER I

THE rain dripped down steadily upon Titan's bleak, cheerless surface, sluicing over the rocks and sand, drenching the tall white fungoid growths. The air, almost unbearably heavy with carbon dioxide, was saturated with moisture from the ceaseless drizzle until it seemed that one breathed it in lumps. Mark Vallard pulled his feet from the mud with a sickening squelch and swore softly.

"Worse than Pluto," he muttered. "Eh, Doag?"

"What price archaeology?" the big Jovian grunted. He sucked at the small oxygen flask he carried, grinned under the beady influence of the stuff. The atmosphere on Saturn's largest satellite didn't require space suits, but what with the unbelievable humidity, the large percentage of free carbon dioxide, a whiff of oxygen every so often was gratifying.

Vallard glanced about the desolate scene. They were in the middle of a vast plain, covered for the most part with pallid, mushroom-like vegetation. Here and there in the white jungle, smoke from the villages of the primitive Titans rose, and an occasional huge worm, blind and harmless for all its size, writhed through the forests.

The two men stood on the edge of the mound from which the expedition had excavated the ancient ruins of Titan's early civilization. An immense masonry dome, of which only the outline remained, had attracted them; and the diggings within it had proved fruitful in clues to the long-lost civilization of the satellite. Soddies archaeologists were busy pawing through mud and sand, studying the inscriptions on

various fallen blocks of stone. The *Stellar*, base-ship of the First Titan Archaeological Expedition, lay perhaps a quarter of a mile off, rusty and mud-spattered from long weeks of inaction.

Vallard sighed in sheer depression. "Where're the diggers, today?" he said. "Another of their everlasting holidays?" The expedition used workmen from the tribes of uncivilized Titans who had no love for labor.

"Looks like a permanent holiday this time." Doag shrugged his massive shoulders. "They decided we were profaning the resting place of the ancient ones. And just when we were uncovering the most interesting inscriptions of all. Hello, there's Fowler!"

In the middle of the ruins a large tent had been pitched. A wizened little man with the pompous air of a cock-sparrow had stepped out into the eternal rain, was rubbing grease from his hands. Vallard and Doag moved toward him.

"So Achilles has quit salting in his tent?" Vallard said jovially. "I suppose it might interest you to know that all our diggers have up and quit."

"Diggers?" Fowler continued to scrape grease from his hands. "Quite immaterial, my boy. Science has other means at her disposal." He swelled importantly, started back into the tent.

"Wait a minute!" said Vallard. "Don't you think you've been playing Indian chief long enough? You're nominally in command of this expedition and all you've done since we've been on Titan is stay in this tent and work on your mysterious invention!"

"True." Doag nodded gravely. "You

A COMPLETE NOVELET

carry strange machinery into this tent, hammer away, and no one even knows what you're making." He chuckled. "Mad scientist lurking in tent. . . ."

"Your attempts at humor," Fowler said portentously, "are proof of your immature minds. But genius always has to contend with such ignorance, I suppose." He disappeared once more into the tent and the sound of hammering was resumed.

"A hell of an expedition," Vallard glanced at the dripping scientists knee-deep in mud about the ancient ruins. "Rain and more rain, the diggers quitting, Fowler having one of his brainstorms, and. . . ." He broke off, staring. "Look, Doag! The Titans!"

DOAG stared through the mists in the direction of the *Stellar*. In the mud and muck about the ship, small, ugly figures were moving. Titans, for these creatures, was the most classic misnomer in the solar system. Scrawny arms and legs, big, pot-bellied bodies, pendulous ear-lobes and webbed fingers, round red eyes. . . and the whole surmounted by a mop of hair that gave the appearance of a chrysanthemum. Savage, ugly, treacherous, they were about as titanic as a space-rat.

Vallard watched them move toward the *Stellar*; from their waists hung vines weighted with stools, like hobs. He remembered what Doag had said about the Titans believing that the expedition was profaning the ancient ones. And there were only two men left as guards aboard the space-ship.

"Hey! Campbell, Walker, you others!" Vallard called to the group of men about the excavations. "There's a bunch of natives heading for the *Stellar*! We'd better see what they're up to! I don't just like. . . Good Lord!"

The Titans about the ship had moved suddenly, their webbed feet keeping them on the surface of the mud. They were swinging into the airlock of the spaceship, and in the gloom Vallard could see the flash of heat-guns behind her portholes.

"Quick!" Doag drew his gun. "They're fighting aboard her! Come on!"

He and Vallard raced toward the *Stellar*, but already the firing had ceased. The two guards, unsuspecting, had gone down after only a brief struggle. Vallard swore softly and the big Jovian beside him drew a bead on the ship's airlock, fired. . . but at that

distance his aim was poor. The other scientists were running forward to join them, but for the most part they were unarmed.

Suddenly from the ship's airlock the ugly Titans began to emerge. And they were armed with heat-guns from the *Stellar*'s supplies. Scores of them, racing across the mud on light webbed feet. Vallard fired and two of them toppled to the ground, but more perished so. Flashes of light were rising on all sides as the heat guns, expertly handled by the natives, missed them. Wherever the beams struck the mud, steam rose to mingle with the mist, and the Titans were rapidly drawing so close that they could not fail to miss.

Doag fell flat in the mire to avoid a shot aimed at his head; the lurid beam passed above him like a white-hot lance. When he arose, he was hard to tell from the mud. His answering shot checked the Titans momentarily, but Vallard could see a party edging around to cut them off from the ruins.

"Got to get back. . . to excavations," he muttered. "They can move faster than we can out here!"

Doag nodded and the two men, bending low, dodged in and out of the white fungi of the plain. Now and again flashes of gun-fire would light up the rain-swept terrain but they ploughed steadily ahead, trusting to the Titans' poor marksmanship. Scrambling over the crumbling wall of the ancient ruins, they rejoined the other members of the expedition.

"Safe?" Walker nodded. "We couldn't help. Only two other guns besides yours in the whole damn diggings. Weren't expecting this." He peered over the edge of a cyclopean monolith, ducked hastily as red flame spat above him.

"Looks like we're in for a seige," Vallard said grimly. "Is Sitting Bull still in his teepee?" He moved toward Fowler's mysterious tent. "If this doesn't bring him out of his pipe-dreams. . . ."

HE PAUSED as the tent-flap opened and Fowler emerged. The little archaeologist favored them with a superior smile.

"Finished!" he announced. "They laughed when I returned from Pluto. . . ."

"And now you're the life of the party," Vallard concluded. "Would it interest you to know that the Titans have raided the

Stellar, scuppered Wells and Donnelly, and are now besieging us here . . . armed with our guns?"

"Titans? Besieged?" Fowler's air of triumph fell from him like a cloak. "At a time like this!"

"I don't see what the time has to do with it." Doag watched the flickering rays, like heat-lightning, dance along the rain-wet stones. The rest of the expedition was seeking shelter among the crumbling ruins of the ancient structure. The Titans seemed content to draw their fire in return, wait until the four best guns in the earthmen's hands were exhausted, before trying a rush.

"So." The big Jovian picked off a spindly-legged figure that showed itself too clearly among the pallid waxy growths. "Three hundred or more of them out there. And at least eighty guns. Twenty of us, four guns. Simple mathematics. We'll last two days with luck. No way to reach the ship, no way to get help. And archaeology's supposed to be a peaceful science!"

Fowler stared out at the rainswept plain, the lowering clouds. Suddenly he straightened his shoulders.

"Give your guns to Campbell and Walker," he said. "Then come to the tent."

The two men did as he requested, ducking from rock to rock for cover. When they returned, the little archaeologist was waiting for them by the canvas shelter.

"You've been wondering what I was up to, these past weeks," he said slowly. "Remember our experience on Pluto?"

"I'm not likely to forget it in a hurry," Vallard granted. "I've been called the biggest liar in the solar system whenever I mention that time-machine."

Doag nodded in assent.

"The greatest experience any three men ever knew," he said. "Going backward in time! And the world refusing to believe! If only the machine hadn't been wrecked, archaeology would be able to . . ."

"Come here." Fowler entered the tent. "Look!"

Vallard drew a sharp sibilant breath. In the center of the tent amid a litter of tools and machinery, rose a transparent cone, some ten feet tall. At its apex was a tangle of wires, beneath which a control board rose. In one side of the cone was a small air-tight door.

"The time-cone!" Doag's big craggy face lit up. "But it was destroyed! We saw it blasted by a ray-gun. . ."

"True." Fowler nodded. "But when we returned from Pluto I had the remains sent back to earth. For three months I studied them, checking every part, trying to remember how each wire went. I didn't tell anyone what I was working on. Not even you two, because I knew what they'd say if the story got out. They'd want to put me in a nice padded cell. Time-travel's supposed to be impossible."

"Right." Vallard nodded grimly. "I know. Just like trying to convince people back in the twentieth century that a rocket-ship wasn't a dream. You think it'll work?"

"What odds?" Doag shrugged. "Yesterday we could have made the greatest archaeological discoveries ever dreamed of! Not trying to piece out history from old inscriptions, but actually seeing, living, the past. Now, with those mad Titans besieging us. . ."

"Look!" Fowler was deathly serious now. "The time-cone saved us on Pluto. From starvation. We know the people who built these ruined buildings were powerful. Their inscriptions show them to be scientists, warriors! Why not go back and enlist their aid! The aid of men dead ten thousand years!"

"But" . . . Vallard glanced out of the entrance of the tent. . . "how about the others? We'll have to tell them. . ."

"Nonsense!" Fowler shook an impatient head. "Time is our servant. We can return at the exact moment we left! This moment! Even if we stay away a week . . . a year. They won't know we've been gone an instant! Come on!"

The two men stood motionless, listening to the drumming rain, the hiss of heat guns, the hoarse shouts of the Titans surrounding the ruined city. Suddenly Vallard nodded.

"Right!" he said. "It's the only chance." He stepped into the time-cone, followed by Doag. "Do your stuff, Doc!"

Fowler moved to the controls, his normal pomposity returning.

"Thus does genius triumph over all obstacles," he announced. "The name of Fowler shall be among the immortals of science! I. . ."

Vallard never heard the rest of Fowler's modest tribute, for at that moment the little man threw the switch. A blue light broke from the apex of the cone and in another moment they were lost in the abyss of time.

CHAPTER II

IT WAS like the time on Pluto all over again, Vallard thought. The black swirling mists, the sensation of eternity stretching away on all sides, the staggering terror of infinity. And his two companions standing like ghosts beside him while the unknown cosmos beyond the cone writhed with alien life.

Then suddenly the darkness about them took on a greenish hue, and Doag, leaning forward, gave a surprised grunt.

"Look!" he said, pointing.

Vallard stared. The time-cone was completely surrounded by a thick swirling greenish vapor . . . a vapor alive with queer misshapen birds, strange lizard-like creatures, great strips of lived vegetation. The door, air-tight, prevented leakage, but they were entirely surrounded by the thick green luminous mist.

"A nice time-era you pick!" Vallard grunted. "We're in the middle of a gas-cloud!"

Fowler frowned. "This should be the period when that ruined city was at its peak," he said, fingering the controls. "I don't just understand. . . Look!" He pointed. "That's where the green smoke came from!"

Doag and Vallard followed his gaze. Beyond the glowing mists the walls of a large room were visible; and at one end of the room a circular bronze door, through which the vapor poured, was closing.

"Locks of some kind," Doag grunted. "We seem to be in the middle of a prehistoric gas-works. And, say . . . isn't the vapor getting lower?"

"Right!" Fowler nodded in satisfaction. "Must be heavier than air! Draining out through gratings, holes, in the floor!"

The three men peered through the transparent walls of the time-cone. As Fowler had said, the green luminous gas was draining off, leaving a litter of queer vegetation, grotesque birds and beasts that gasped like fish out of water, on the stone floor. Then before their curious gaze they saw a small door open at the end of the room, and half a dozen odd, semi-human figures appeared. Tall, muscular, bronzed, they would have been rather earthy in appearance had it not been for their pendulous ear-lobes, and bushy cheeks of hair. They were, it seemed, a refined, less degenerate edition of the savage Titans of

the era the time-travellers had left. Dressed in close-fitting garments of shining red, they carried long, fork-like implements in their hands with which to spear the beasts flopping upon the floor. Sight of the time-cone seemed to fill them with wonder and alarm.

"I think I've got it," Fowler muttered. "This room is a sort of fisherman's net. After draining off the green gas, they gather in a haul of animals, vegetation. Only they hadn't counted on landing us."

"A nice spot you picked to set up the cone!" Doag growled. "We . . . look! They're coming this way!"

The red-clad figures, after one long look at the time-cone, were advancing toward it, their pronged spears raised.

"Think fast, mastermind," Vallard rapped out. "Do we try a more healthy time-cycle, or take 'em on unarmed?"

"This," said Fowler airily, "is merely a matter of impressing them with our superior mentality. Thus!" He opened the door at the side of the cone, stepped out; drawing himself up to a triumphant five-foot-six, he extended one arm in dramatic dictatorial salute.

FROM that point on things happened fast. Far from being impressed by Fowler's "superior mentality," the bushy-haired men sprang forward, bore him to the ground.

"Come on!" Doag shouted. "Got to help!"

He and Vallard leaped from the cone, empty-handed. Stooping low, the big Jovian packed up one of their attackers, slammed him into the group, sending three of them skidding into the litter of vegetation and gasping lizard-like creatures. Vallard followed this success with a hard right that sent another of their attackers sprawling. He sprang forward to pull Fowler to his feet, but a hand clutched his ankle and he slipped on the polished floor. The fall knocked the breath out of him, and when he picked himself up, Doag was hemmed in by a circle of pronged spears.

"Just a matter of impressing them," Vallard said sarcastically. "Eh, Fowler?"

The little doctor swayed to his feet, glanced about; the tall beings, spears ready for the first threatening gesture, were jabbering among themselves.

"Listen!" Fowler exclaimed. "Their speech is like that of the Titans! A little

different, but basically the same!" He dropped into the rough guttural dialect they had picked up during their explorations in the other time-cycle, but their captors refused to answer his questions. With a curt gesture, they urged their prisoners toward the small door at the end of the big room.

As they stumbled through the doorway, Doag gave a grunt of surprise.

"Look!" He pointed upward. "Roofed in!"

The others followed his gaze. The outline of the dome they had observed among the ruins of their era, now became clear . . . for a vast half-sphere of massive masonry rose over the city beneath. Streets, tall buildings, small grass plots, all were sheltered beneath the dome. Gazing about, Vallard drew a sharp breath. The vast dignity, the hoary age of the city was somehow breathtaking. Large ultra-violet projectors, like street lamps, gave light revealing the eerie beauty of the place. For the motif of the city was the globe . . . rounded buildings, spherical minarets, globe-shaped dwellings in tiers stretching to the top of the dome.

"Remarkable!" Fowler nodded. "Makes one feel like an ant in a heap of marbles! An unique architectural system! I must make notes on this for my brochure on Titan's early civilization . . ."

"Optimist," Vallard granted. "Better get that 'superior mentality' to work on these mugs first!"

Their captors were taking them through narrow streets, from which curious passers-by stared at them. Vallard caught the words, "Teleite" and "zirkon" often repeated among the crowds. He and his three companions didn't make imposing spectacles, he realized. Fowler's pompous air was marred by a promising black eye, while Doag, although his size and Jovian solemnity were impressive, was still torn and maddened from the struggle with the Titans.

A vast globular building loomed before them; they passed through the massive doors with some misgivings, made their way along a maze of corridors. Guards, armed with copper shields and swords, admitted them into a large hall at the top of the globe.

"Gods of Jupiter!" Doag muttered. "Look!"

The room itself was no novelty, for it contained only a bronze table and chairs. But in the center was a hole opening, via a

circular staircase, into the floor below. Here was machinery . . . huge complicated machinery . . . and glass pipes through which the green gas flowed, emitting an eerie glow. The weird light, pouring from the hole in the floor, gave an unreality to the bizarre murals on the walls of the upper room until it seemed a witches' den.

As the three prisoners and their guards waited, a man and a woman toiled up the ladder from the strange engine-room. Young, muscular, though seemingly tired, only the large earlobes and bushy hair differentiated them from earth-belongs. Both were clad in brilliant scarlet.

"Failure, Tama," the man was saying. "Always failure. But we must find out. . ." He broke off at sight of the three captives. "Who . . . who are these beings?"

"EXCELLENCIES!" The leader of the guards bowed first to the man, then to the woman. "We are workers in the admission chamber. The zirkon had been let in as usual, drained off for the power stations" . . . he motioned to the masses of machinery below . . . "as it always has been done. When the chamber was clear of zirkon we entered, to obtain food, and found a queer cone, containing these beings. At first we thought it was some trick of the Teleites, but these are a new race."

The tired young man nodded, studied the archaeologists with keen curious eyes.

"I am Kahl, headman of this dome," he said in the rough Titan dialect. "Who are you? Where have you come from?"

Vallard shot a glance at Fowler. "Start impressing 'em," he said. "You got us into this!"

The wizened little doctor stepped forward. Choosing his words carefully, using synonyms whenever the young man seemed puzzled, he explained the time-cone. The slender girl beside Kahl frowned.

"Men from another world?" she said. "From a time in which we are long dead? This is some Teleite trick . . ."

"Let us listen, Tama my wife." The young ruler turned again to Fowler. "If your story is true, you must be a great race, and powerful. Why have you come to our poor city?"

"The Titans . . . savages . . . are besieging our expedition in our time-era." Foster was gaining assurance now. "We want warriors, weapons, to defeat them."

"Here there is no help for you." Tama shook her head. "We are almost savages ourselves. Through ease, lack of necessity, we have lost the great learning of our forefathers. There is no science in this dome, or in any of the others, if they still survive."

Doug glanced down at the maze of machinery below. The scarlet-clad Kahl followed his gaze.

"You think the machines below are proof of our power?" He shook a disconsolate head. "They were built in the old days before the zirkon came. And built too well! Everything was foreseen by our ancestors; they made the domes so perfect that there was no need for us to work, think, improve. So we have forgotten their science, leaving everything to the automatic machines. Someday the machines must break, wear out . . . and we will be helpless! So many times Tama and I have gone below to study them, but their principles are beyond our grasp! Unless we learn, this dome is someday doomed."

"But" . . . Big Doug studied the two young people . . . "you mentioned other domes. And what is this zirkon?" He shot a glance at his companions, Fowler nodding, making mental notes, Vallard staring at the machinery below. "We may be able to help."

Kahl and Tama reflected a moment. The green light pouring from the circular hole in the floor cast weird shadows over their sombre faces. The armed guards who had brought the three prisoners into the room were silent, immobile. Then suddenly the young headman of the dome spoke.

"This is the story of our people as my grandfather told it," he said with deep solemnity. "Centuries ago we on this satellite you call Titan were a peaceful, happy, civilized race, and endowed with great science, vast learning. Then one day our astronomers noticed one of the rings of the parent body, Saturn as you have named it, was expanding. Within a few years, they calculated, the great ring would envelop Titan. Studying the ring they discovered it was no circle of dust and tiny meteors, but a band of strange and deadly gases, charged with ions of free electricity which made it glow. This gas was zirkon."

Kahl paused, gazing at the green glow from the pit below. When he resumed speaking, his voice was low.

"Our forefathers decided to exert all

their power to protect themselves from the deadly gas. But there were two schools of thought. One was to build these domes as protection, the other to remain in the open and accustom themselves to the zirkon. These latter groups knew that the change would come gradually and hoped for a biological evolution such as the evolution of fish to men. Each of the two schools thought the other wrong and went ahead with its plans. We are the Deemo-men and those who conditioned themselves to the zirkon are the Teleites."

"I begin to understand," Fowler nodded intently. "Highly interesting, psychologically. And you mean that outside this dome there's a . . . a sea of this electrically-charged gas?"

IN ANSWER the girl Tama moved to one side of the room, drew back heavy metallic curtains. The building in which they stood was set against the outer dome and the heavy glass bulls-eye permitted a glimpse of the world beyond.

"Great Cosmos!" Vallard swallowed hard. "It . . . it's like a window into hell!"

His companions made no answer; their eyes were glued to the scene before them. It was, as Vallard said, like an opening into the inferno. Heavier than air, the zirkon lay in a luminous green layer, covering everything like a deep glowing sea. The queer light from the suspended ions of electricity gave a weird mephitic look and Vallard felt as though he were gazing, hypnotized, into the depths of a great emerald. More, there was life in the sea of zirkon, queer, teeming, alien life. Vegetation, strange leprous stuff, writhing in the manner of a nest of serpents, its groping tendrils twisted into a thick jungle . . . and animal life, grotesque, leathery birds, giant slugs, and lizard-like horrors creeping among the tangle of vines and fungi. The surface of Titan, beyond the dome, was a horror of rampant, unreal life, monstrous, repulsive, an inferno worthy of a Dante's pen.

"So," Tama said softly, "the world outside has evolved to suit the atmosphere of zirkon. The gas is full of carbon, and plants thrive. And all life has become semi-reptilian . . . even the Teleites."

"Amazing!" Fowler nodded. "In some respects it corresponds to the mesozoic era

of earth! What do you inside this dome do for air, food, and power?"

"All that was figured out by the ancients," Kahl muttered. "The admission chamber in which you were trapped, gives us food. We bait it with scraps of meat, and the creatures from outside enter. When enough are inside, we close the door, allow the zirkon to drain off. The beasts die in the air, like fish out of water, and supply us with food. Our water comes from ponds beneath the dome. Then, as to power, the green gas flows into this room below" . . . he pointed to the machines in the room beneath . . . "and in some way the free ions of electricity are collected, utilized. This power runs the ultra-violet lamps, necessary to our health since we are cut off from the sun, and also the air regenerators. And from the zirkon other materials vital to our existence are obtained. Salt, carbon, similar chemicals. For the zirkon is a composite of heavy gases, which bring death by strangulation."

"Like the deluge of water on earth," Vallard grinned. "Only here it's this zirkon gas-mixture. And the domes are sort of Noah's arks. But there weren't any of those Teleites on earth!" He turned to Kahl. "Ever see any of your Teleite friends?"

"A few have been caught in the admission chambers," Kahl gave a look of revulsion. "They died in our air. But before they died, they killed many of our people with their terrible powers." He made a weary gesture. "And now you know all there is to our dome-world. Sameness . . . eternal, unchanging. The machinery goes on, life goes on. No way to reach the other domes, because of the zirkon, the fierce creatures outside. No adventure, no excitement, no deviation from our routine. . ."

Doag glanced about, nodding. The dreary sameness of the dome-world offered no help.

"Better go back further," he muttered. "To the days before the zirkon came. The men who built these domes ought to have weapons, brains. And with the expedition surrounded by those damned Titans, we better step on it. . ."

"Right. Come to, Doc!" Vallard gripped Fowler's arm, shook him out of his archaeological day-dreams. "We've got to go back further in time to get help! You can study this civilization later!"

"I shall go to the admission chamber

with you," Kahl said. "The sight of your transition should prove interesting. So little ever happens here. . ."

EVEN as Kahl spoke, his words were proven false. Shouts sounded in the corridor, excited dome-dwellers burst into the room.

"Kahl! Kahl!" came the rising cry. "The Teleites! Entering through the admission chamber! Wearing masks so that our atmosphere does not harm them! Quick!"

"Teleites! But this is impossible! Never in our history. . . ." The young ruler snatched up an ornamental bronze sword and shield. "Rouse the dome! Hurry!"

For a long moment the three time-travelers stood stunned. Vallard reached for a heat gun that was not there, swore.

"First excitement in a thousand years," he grated. "And we have to land in it! You're a jinx, Fowler! The admission chamber, too! Where the cone is! If they smash that. . ."

"Come on!" Doag's face was grim. "Can't get marooned in this era! Got to fight!"

Then they were racing after Kahl, through winding corridors, toward the clamor outside. Mad, Vallard thought. Quite mad. Even on Pluto they hadn't run into anything like this. Panting, he followed Doag through the doorway of the globular building.

The streets of the dome-city were in a turmoil of confusion. The dome-men, armed with bronze swords and shields, poured into the streets, shouting furiously. But coming from the admission chamber at the far end of the dome were beings who made the bushy-haired dome-men handsome by comparison. Scaly, hideous, they emanated a queer glow, like phosphorus. The result of breathing in the free ions of electricity from the zirkon, Vallard realized, and absorbing the strange current. On their backs were small copper tanks, with masks covering nose and mouth. Conditioned to the heavy gases, they could not now breathe air, and were like divers, carrying their own atmosphere in tanks. The Teleites were unarmed, yet were driving the dome-men back with great slaughter and the latter were near to beseeching.

At sight of Kahl, his people rallied. The young headman forced his way through the throng, sword in hand, followed by the three strangers. Along narrow streets, in

the shadow of great spherical buildings, they raced, faces white in the pale light of the ultra-violet lamps. As they neared the admission chamber, they could see the glowing Teleites, bodies exuding a greenish witch-fire, pushing onward with fierce cries. Motionless, inert dome-men lay upon the stone street, their still figures unmarked except for queer burn-marks. Doag snatched up a bronze sword and shield, and the others followed suit.

"Don't know what we're up against," Vallard muttered. "But we'll soon find out!" He grinned at little Fowler, brandishing a sword nearly as big as he was. "Attaboy, Achilles! Come on!"

They were in the front rank now, beside Kahl. A group of the scaly, moist-skinned Teleites sprang forward, the green light from their bodies giving a weird glow to the scene.

"Extraordinary phenomenon," Fowler panted. "Common among certain types of marine life, but unknown to homo sapiens! Ah!" He threw up the bronze shield as one of the Teleites lunged at him with bare hands. The glowing fingers touched the shield and Fowler gave a sharp gasp, writhed as though in pain. The sword fell from his hand, he slumped to his knees, fell flat.

"Fowler!" Doag leaped forward, mighty muscles tensed. In one terrible stroke his sword hit through the Teleite's scales, all but sheared his body in two. A fearful blow, it brought death to the glowing warrior . . . but Doag, gripping the sword-hilt, went rigid. The weapon was buried deep in the queer creature's side, yet Doag seemed unable to move, even to relinquish his grip on the hilt.

"Charged!" he muttered through clenched teeth. "Like . . . electric eels! No hope of . . ." He swayed as the dying Teleite, in a last spasm, poured his deadly charge along the sword. Then with a crash Doag, the mighty Jovian, toppled to the ground.

Vallard understood now. Through breathing the zirkon, the invaders accumulated a tremendous potential. Like, as Doag had said, electric eels. The bronze and copper shields, far from being protection, merely made good conductors. And every sword-stroke meant death to its wielder. He glanced about. Kahl was down, the street was littered with still figures, and the remainder of the dome-men were throw-

ing down their arms. From the corner of his eye Vallard saw two of the glowing Teleites rushing toward him. Whirling, he threw the sword at one of them, saw him slump to the ground. The other, unchecked, reached out and gripped Vallard's wrist. The earthman stiffened, as the surging current tore through his body. Through dark mists he saw the Teleite's eyes burning over the top of the mask that brought zirkon to his nose and mouth. Then Vallard's limbs seemed to turn to water and the domed city, the rounded dwellings, the eerie glowing figure, all faded into black oblivion.

CHAPTER III

VALLARD came to feeling as if he'd been on the rack; every muscle ached and his wrist was burned where the Teleite had gripped it. He rolled over, sat up.

At the other side of the little room he saw Fowler and Doag, heads together in conversation. Fowler looked up, grinning.

"Ah," he said. "Our hero revives. How d'you feel?"

"Like hell," Vallard growled. "And that guy Kahl said nothing ever happened around here! Where are we now?"

"In one of the rooms of Kahl's palace," Doag said gravely. "The Teleites are in full control. They're avenging the death, so they say, of some of their people who got caught in the dome's admission chamber. Kahl and Tama and the rest of the dome-people are penned up in the admission chamber right now."

"While we are kept separate," Fowler said. "The . . . ah . . . assailants have not failed to recognize our superior mentality."

"A little less of that superior mentality and we wouldn't be here," Vallard growled. "What about the time-conc?"

"We don't know." Doag shook his massive head. "But it isn't likely they'd tinker with it just now. What worries me is the thought of Walker, Campbell, and the rest, hemmed in by those lousy Titans . . ."

"A mere bagatelle!" Fowler snapped his fingers. "Once we get out of here, it's simple. Have you stopped to consider closely these electrical beings? For instance, why don't they lose their charge with every move they make?"

"Why doesn't an electric eel?" Doag said.

"They're completely surrounded by water, an excellent conductor!"

"Splendid." Fowler nodded like a pleased parent. "You show the glimmerings of intelligence. The answer is, of course, that the eel only generates electricity when attacked or frightened. So with these Teleites. When they want to knock someone out, they turn on the juice. The charge passes through their hands into the person they touch, through the ground and back into the Teleite to complete the circuit. Thus they shock by touch, with their hands, or where, as in Doag's case, a sword-blade touches their bodies. So much for applied logic. I will now show you what, with admirable foresight, I brought along in case of repairs to the time-cone." He reached into his pocket and, with the air of a magician pulling a rabbit from a hat, produced a roll of copper wire.

"So what?" said Vallard suspiciously. "I don't see . . ."

"Look," Fowler said patiently, "you lie down there and pretend to be dying. Or crazy. Or both. Only raise enough noise to attract the guard. And leave the rest to me."

"When it comes to acting nutty, I'm hardly the one," Vallard began. "It seems to me . . ."

But Fowler wasn't listening. Very carefully he bound his hands with dry cloth torn from his coat, to form a crude but effective insulation. Over the cloth he wrapped the copper wire, taking care to leave a long strand dangling from each wrist to touch the damp floor.

"All right," he announced at length "Yell!"

They did. The shouts echoed through the cell, the corridor outside, like the wail of doom. With a clatter of footsteps one of the tall glowing figures appeared in the passage, his face half-hidden by his zirkon mask.

"He's dying!" Doag motioned to Vallard, doing a realistic bit of writhing in one corner of the room. "Insane! Put him out of his misery before he attacks us!"

Warily the Teleite opened the door, stepped inside. And as he did so, Fowler sprang from the shadows to face him, fists drawn back.

There was a contemptuous look on the guard's countenance as he whirled to meet this attack. His hand shot out, crackling with blue sparks, toward Fowler's face. One

touch of that highly-charged body and the little archaeologist would have been out of the fight . . . but with a quick motion he caught the thrust with his left hand. Sparks shot out as the Teleite's fingers touched the copper-bound hand. The cloth insulation smoked ominously, but the current, following the line of least resistance, ran down the wire that trailed upon the stone floor, sparkling violently. The wire was a lightning rod, diverting the current from Fowler's body, grounding the charge.

"Some powerhouse!" Vallard, standing helplessly alongside Doag, watched the Teleite lash out again . . . and again Fowler caught the thrust with his copper-bound hand, grounded the charge. In spite of the trailing wire, the cloth insulation, some of the charge entered his body and he winced, but stuck to his task.

"Go to it, Doc!" Doag clenched his big fists, cursing his own helplessness. But one touch of that glowing body, unless grounded, or insulated, meant sure shock . . . perhaps death.

FOWLER and the guard were doing a wild dance about the cell. The Teleite, now that he found his thrusts were turned aside by Fowler's "lightning rods," was rushing his opponent, in hopes of bringing his body into contact with that of the little archaeologist and thus ending the struggle. But always a blow from Fowler's copper-bound fists hurled him back, kept him at a distance. Once the guard kicked out with his foot, and only a quick leap backwards kept the leg from touching Fowler. A miracle of skill it seemed, that, using his hands as twin shields, he was able to avoid being touched elsewhere on his small figure.

The Teleite was worried, now, his eyes showed fear. He could not quite understand why his electrical charge had failed him. Moreover, it began to appear that this charge was weakening. The sparks were growing less, it seemed an effort for him to produce the needed power. And with the zirkon mask over his mouth, he could not shout. It was at this mask that Fowler now aimed. With one sharp blow he knocked it from his opponent's face. Gasping, choking in the unaccustomed oxygen, the guard slumped to his knees, striving to replace the mask, get a breath of his life-giving zirkon. The green glow of his body had faded away, and no more sparks leaped from his hands.

"O . . . okay!" Fowler granted. "He's too weak to generate more juice! Tie him up, you two!"

Doug and Vallard lashed the queer figure with their belts. The best he could put out was a mild charge like that of a run-down battery. In a moment the two men had him securely bound. Vallard lifted one of Fowler's bound hands above his head.

"The winnah, and still champion!" he grinned. "Mastermind" Fowler, the kayo king!"

"A rudimentary application of practical physics," Fowler began, swelling perceptibly. "Thus does genius triumph over . . ."

"Haden't we better get going?" Doug cut in. "We've got to reach the time-cone, go back further in time, get help from the people who built this dome! The expedition, surrounded by those Titans . . ."

"First," said Fowler importantly, "we must overcome these Teleites, free Kahl and his people. Then . . ."

"What!" Vallard gasped. "Why . . . why you dried up little goat! Let Kahl and these walking generators fight their own feuds! Don't you realize the expedition is fighting for its life! That if we don't get help, quick, it's doomed! There's nothing in this time-cycle that can overcome the heat-guns the Titans got from us! What good are Kahl and his sword-and-shield gang against flame-guns? You can't do this, Fowler! Can't! We've got to get help . . ."

"You can't handle the time-cone," Fowler said blandly. "And I can. So you better stick with me. Coming, Doug?"

The Jovian shrugged helplessly, followed Fowler from the room.

"Okay," Vallard said bitterly. "You win. So now we fight for the dear old dome-people while the rest of the bunch back in our time-cycle gets knocked off!"

Fowler vouchsafed no reply and the three men made their way along the corridor, walking sulkily. The u. v. lamps still shed queerly. They were, it appeared, in the main building, where Kahl had received them before the invasion.

"This way," Fowler muttered. "I want to have a look at those machines in the lower level."

Vallard granted disgustedly, followed, his shadow looming grotesquely upon the wall. This was, apparently, the dwelling quarters, for there were tables, stools,

benches, in the big rooms. Queer frescoes covered the walls until it seemed they were surrounded by ghostly legions, and the silence within the great spherical building was eerie. Once they passed a window that opened onto the green, zirkon-laden world beyond the dome, and sight of the teeming rampant life outside made them think of some nightmare jungle where life fed upon life and the luminescent green mists had a thousand horrors. Small wonder the Teleites, denizens of this outside world, were merciless, savage. Once, too, they passed a window that gave view of the streets of the dome-city and here they could see the Teleites looting buildings, roistering through the broad avenues . . . silent, since the zirkon masks covered their faces to enable them to breathe. But from the way many of them stood hand touching hand it seemed that they had a code of short and long electric charges that permitted them to communicate. Two, quarrelling over a looted jewel-casket, gripped hands, drawing electric energy from each other until the weaker, drained of his charge, collapsed.

All this the three men noted in a glance, then tiptoed on through the empty rooms. At the entrance of Kahl's reception room, Vallard suddenly gripped Fowler's arm, pointed. Ahead of them, standing motionless, was the glowing figure of a guard.

Fowler nodded, started forward with his copper-trailing hands, poised, but a motion from Doug stopped him. The huge Jovian bent, picked up a heavy wooden footstool. It scraped the floor a trifle as he picked it up, but the Teleite's hearing, accustomed to the heavy zirkon which conveyed sound better than air, did not hear. Doug threw back his herculean arm, let fly.

The footstool spun through the air, caught the guard at the base of the skull. One frightened flurry of sparks flew from his fingertips, then he fell to the floor, unconscious.

"Nice pitching," Vallard said. "A perfect strike!"

"Quiet!" Fowler waved him to silence, led the way into the large room where they had first seen Kahl. The queer light still poured through the circular opening in the floor and the massive machinery below hummed unceasingly. Face a set grim mask in the ghastly illumination, Fowler motioned to the ladder leading to the machine-room below.

VALLARD, swinging down the circular iron stairs, gave an admiring whistle. The machines there would have done credit to the most elaborate factory on Terra. They were, to be sure, alien in design, and he could not figure out their use . . . but the mere sight of them was somehow awe-inspiring. Huge glass tubes, as big around as a man's body, led the glowing green zirkon from the admission chamber to great copper tanks, wreathed in coils of tubing. Here the free ions were converted to electric power, the carbon dioxide, methane, and other heavy gases broken down into carbon products for food, and the arcs of the u. v. lamps. Other chemicals, too, were obtained in smaller quantities but without analysis Vallard could not tell just what they were. In addition to the machines, there were supplies to make repairs of all sorts. Great sheets of glass, bars of copper, strips of tin, tools of every type. The builders of the dome had provided for every contingency except the one which had occurred . . . that their descendants would abandon learning, science, grow lazy and allow the great knowledge to die out.

"So," Deag said somberly. "Here is everything. But the machines I do not understand. It would take weeks, months of study, to learn their principles."

"Weeks? Months?" Vallard grated. "And the Teleites'll discover our jail-break any minute now! Better go back in the time-cool and fight with the rest of the expedition than stay prisoners here!"

Fowler was examining the great vats of carbon and other products derived from the break-down of the zirkoo.

"Carbon," he muttered, frowning. "Ammonia could be made from it. And they must have iodine. Living matter needs small quantities of iodine. Nitrogen tetra-iodide isn't a terrific explosive, but . . ."

"Nitrogen tetra-iodide?" Deag nodded reflectively. "It'd take time to make. But there's a chance . . ."

"That's what you think!" Vallard cried. "Look!"

Fowler and Deag went rigid. The flow of zirkon through the great tubes had ceased, leaving only the light of the u. v. lamps. And through the big pipes, each over three feet in diameter, dark forms were sliding, shooting down until the first figure was stopped by a strainer in the tube; the others, sliding into him, were

strung out inside the huge pipe like beads. And they were dome-men!

In one bound Deag had snatched up a heavy bar of copper, swung it above his head. Then, with a crash, the massive glass pipe shattered, the score or more figures slid to the floor.

"Great Cosmos!" Deag exclaimed. "Kahl!"

"THE three strangers!" The young ruler shook a wondering head. "The gods are good! Those fools confound me and these of my guard in the admission chamber. There we stood, up to our oaks in zirkon, helpless. But when all of the gas had sunk through the pipes, we lifted a grating and followed, sliding down the pipes 'til we got here! With this" . . . he held up the great diamond he wore about his neck . . . "I planned to cut open the pipe! Your method was quicker!"

Several of Kahl's followers had rushed up their cloaks, stuffed them into the pipe in case more zirkon were admitted from outside. This done, they turned to the three strangers, as though awaiting orders. Fowler glowed at this tribute to his leadership.

"You and your men will hold the stairs, Kahl," he directed. "I haven't checked over this apparatus thoroughly, but I'm willing to bet I can produce an explosive, a weapon of some sort. . ."

"But there is no time!" Kahl shook his head. "The Teleites took pains to tell me that they're going to make this dome a fortress! Going to let in the zirkon, release all the air inside! Then when it's full of zirkon, they'll be able to take off their masks, be at home! And all my people will die! Unless we act at once, there is no hope!"

"You . . . you say we haven't time?" For once Fowler was taken aback. "But . . . without time even the simplest reaction can't . . ."

"Never mind the science, Doc!" Vallard grinned. "This is a fight!" His gaze shifted from the shattered glass of the pipe to the sheets of the stuff among the supplies. Snatching up a hammer, he began to break it into rough oblongs.

"Here!" Vallard slid two of the pieces of glass toward Kahl. "Tie these to your feet! Like sandals! It's thick enough not to break easily, but walk gently!"

"Ah!" Deag stared at the half-inch thick pieces of glass and grinned. "Insulation!

And without our being grounded they can't hurt us! Nice going, Vallard!" He bent to help chip the thick glass.

Kahl and the dome-men bound the clumsy sandals to their feet with strips of dry, fibrous cloth.

"Not a bad idea," Fowler admitted grudgingly. "But what about weapons?"

"Plenty of 'em lying in the streets from the first fight," Vallard stood up, moved clumsily on his insulators. "Teleites haven't bothered to pick them up. They don't need weapons . . . usually." He shot a grim look at Kahl. "All set? Then let's go!"

Up the stairs they went, and through the rooms above. They walked heavily, and nothing could muffle the clank of the glass insulators. Before they had reached the entrance of the building, half a dozen Teleite guards were running toward them.

Vallard swung from somewhere in the region of his ankles, caught the foremost glowing figure flush on the chin. He felt a mild shock, no more, for with the circuit broken, thanks to the insulators, he couldn't be grounded. But the Teleite was grounded . . . in quite another fashion; Vallard's blow stretched him out cold.

With a shout, Kahl's men, who had been hanging back to observe the results of the glass shoes, spring forward, confident. With tools, bars of copper, and other odds and ends they had picked up in the machine-rooms, they fell upon the remaining guards, and bowled them over. Then, brandishing their improvised weapons, they clattered out into the streets, where the fallen bodies of their comrades, killed in the earlier fighting, supplied them with their familiar swords and shields. The entire group had armed themselves before the Teleites attacked.

The tall glowing shapes were pouring from the buildings, bewildered, some laden with loot, but all converging on the group about Kahl and the three time-travellers. Clattering forward on his crude insulators, the young headman gave a shout, raised his bronze sword.

To Vallard, the next few moments were sheer madness. The dome-men, now they had lost their fear of shock, poured in with a savage rage, their reddened swords clearing through the press of glowing bodies. Vallard had fleeting remembrances of dark butchery, of feeble shocks as the insulation prevented complete grounding, of hacking at scaly forms with a bronze sword. He

remembered Doag, towering above the melee like some legendary giant, wielding a massive bar of metal, he remembered Fowler discoursing learnedly on the theories of animal electricity between strokes, he remembered how the blood of the Teleites was luminous from the charge it had absorbed from the zirkon and dripped like phosphorus upon the stone street.

As suddenly as it had begun, the struggle ended. The Teleites, finding their sole weapon, their electrical potential, to be useless, were seized with panic. Cut down in droves by the triumphant dome-men, they fled toward the admission chamber, leaving a trail of dead and wounded behind. Into the massive locks they raced, hotly pursued, and so to the green hell of zirkon outside, where they were free from chase. But of the hundreds who had entered the dome, less than half escaped. The great covered city was free.

CHAPTER IV

FOWLER straightened up from his examination of the time-cone with a satisfied nod.

"Okay," he announced. "Not harmed in the slightest."

"Then let's get going!" Vallard growled. "I've been down checking over that equipment in the machine-room. Explosives're out of the question, Fowler, in spite of your hopes! Not enough apparatus. And when I think of the expedition, fighting for its life against those damned Titans . . ."

"True." Doag nodded gravely. "There are no weapons in this time-era. Perhaps, further back, in the days of the builders of this dome, we may find science, forces powerful enough to overcome the heat-guns."

Kahl, standing beside Tama, shook his head.

"Good luck to you, strangers," he said. "May your battle be as victorious as ours has been!" He turned to Fowler. "My men are bringing what you requested. 'T's little enough to give after all you have done for us."

Doag and Vallard gasped. Half a dozen of Kahl's men were approaching the time-cone . . . and they were carrying one of the big, powerful ultra-violet lamps that lighted the dome.

"What's that for?" Vallard said suspiciously. "Another of your brainstorm?"

Fowler motioned the men to place the big lamp within the cone.

"That," he said with chilling dignity, "is the weapon that will overcome the Titans! Through sheer genius I have evolved . . ."

"Weapon?" Vallard howled. "U. V. rays? I suppose you aim to sunburn them! Good Lord! Look, Fowler, let's be serious! Walker, Campbell, Derrickson, all the rest, are battling for their lives! You can't . . ."

But the little scientist had already entered the cone; one hand on the control-lever, he was waving farewell to Kahl.

"Come," Big Doag struggled. "We cannot remain in this time-era. Fowler has brought us through so far." He squeezed into the cone, followed by the protesting Vallard.

There wasn't much room in the time-cone, with the big u. v. lamp taking up so much space.

"All set," Fowler warned. "Here goes!"

He turned the dials, and once again the queer writhing blackness engulfed them, and the rushing sound, like wind wailing through infinity, met their ears. Vallard braced himself against a sensation of dizziness, and then the dark abyss vanished.

Once again they were in the tent, and outside they could hear the hiss of heat-guns, the drumming of rain, the wild shouts of the Titans.

"Here!" Fowler snapped. "Help me with the u. v. projector!"

Vallard and Doag obeyed, doubting; the three of them managed to carry the big lamp out into the rain-swept ruins. The beams of the Titans' stolen heat-guns played in lurid fury over the ancient masonry, turning the driving rain into clouds of steam. They were, it seemed, creeping steadily nearer, and the weak answering fire could not check their advance.

Walker, muddy, hands blackened by the back-spit of his heat-gun, glanced at the three men.

"Decide anything in your huddle?" he demanded. "And what's that gim-track? The machine Fowler's been working on?"

For a moment Vallard frowned, wondering why Walker wasn't more surprised at their long absence; then he realized that Fowler had brought them back to within a few moments of the time-era they'd left.

Others of the besieged expedition were moving toward them, dodging from stone to stone. Derrickson, the stocky radio op-

erator, glanced at the projector, nursing a badly-burned hand.

"Looks like a big u. v. lamp," he grunted. "We'll need more than that! They're getting closer every minute! Can't hold out much longer!" He ducked as a fiery beam tore at the ancient stones.

"Quick!" Fowler was adjusting the wires of the u. v. lamp. "Here, Walker, give me the power-pack from your gun!"

Walker obeyed and Fowler connected it to the projector. Under the power of the little atomic pack, a bluish beam cut the heavens like a searchlight. Keeping the ultra-violet lamp well behind a massive stone, Fowler swung its beam up on a long slant over the besiegers. The Titans at once replied with a barrage of rays, fearing some new weapon, but upon finding that the beam was pointed only at the rain and mist above their heads, bursted mocking shouts at the earthmen. Slowly, imperceptibly, Fowler swung the beam in circles, above the ring of howling natives who surrounded the ruins.

"All right!" Vallard exclaimed. "So what? When you've finished playing anti-aircraft searchlight, we can use that power pack in Walker's gun! Don't you see they're edging closer every minute?"

"Keep your shirt on," Fowler said dryly. "And leave this to me."

VERY methodically he swung the bluish beam in circles, piercing the foggy, carbon-dioxide laden air. The fire from the Titans was growing fiercer, and two of the expedition fell, seared, blackened figures among the ruins. The three remaining guns within the enclosure stabbed the gloom in answer but their assailants, edging from rock to rock, drew steadily nearer.

Doag shifted uneasily from foot to foot, glanced at Vallard. The latter frowned, staring at Fowler. Beneath his huster he had a deep respect for the little archaeologist, but this madness of trying to defeat a crowd of well-armed Titans by pointing a u. v. beam into the air above them was too much.

"All right, Doc," he said harshly. "Call it insubordination, mutiny, or anything you like. But I'm taking that power-pack and putting it back into Walker's gun. Another five minutes and those ugly devils'll be close enough for a rush! And we'll need every gun to try and beat 'em off! Not that

there's much chance of succeeding but at least we can kick off knowing we've done all we can!"

"Dramatic," said Fowler caustically. "Very. If you ever used your head . . ."

"Sorry," Vallard grated. "We're getting that power-pack! Now! Come on, Doag!"

The two men bore down on little Fowler, were about to tear the power-pack from the machine, when Walker, peering cautiously over a block of stone, gave a cry of wonder.

"Look!" he shouted. "The Titans! They . . . they're going nuts!"

"Nuts?" Vallard straightened up, peered over the massive rampart . . . and gave a startled gasp. The grotesque beings were shouting, dancing with pain, clutching their eyes. Many of them seemed suddenly blind, for, dropping their stolen guns, they were blundering about in the gloom, groping their way with cries of pain into the tall white forest. Fleeing in wild disorder, they stumbled away from the ruined dome, were soon swallowed up by the mists.

"But" . . . Doag couldn't believe his eyes. . . "but what was it? What in the solar system . . ."

Fowler smiled in his most benign, tolerant manner, like a teacher addressing children.

"The u. v. rays you were so scornful of," he said. "So simple . . ."

"But they weren't pointed at the Titans," Vallard barked. "You pointed the projector into the fog above their heads!"

"Exactly," Fowler grinned. "The air

here has a high content of carbon dioxide. So much so that you can hardly breathe it. And the fog, the rain, give water. Consider what happens if carbon dioxide and water react under energy, as represented by the u. v. rays. You get formic aldehyde."

"Formic aldehyde?" Doag muttered.

"Otherwise known as formaldehyde," said Fowler airily. "Plants, vegetation, utilizing water, carbon dioxide, and sunlight, manufacture formaldehyde in one of the intermediate steps toward making starch. We didn't carry on the process that far. Formaldehyde was what we wanted. One of the strongest antiseptics known. On the mucous membranes of the throat, nose and lungs, it's not pleasant. In the eyes it's blinding. That's where we got them, mostly. The stuff was suspended in the mist, in tiny particles. Must have burned their eyes like fire." He chuckled. "Catch on? When I saw those u. v. lamps in the city, I figured it out. Decided if we could help Kahl in his fight with the Teleines, he'd be glad to let us have one of his precious lamps. Any further questions?"

"You win?" Vallard swallowed hard. "You win, mastermind!" He held out a lean hard hand, grinning. "Thus does genius triumph . . ."

" . . . over the feeble intellects of lesser beings," Fowler finished. "Eh, Doag?"

"There will be only one Fowler," the big Jovian assured him gravely; but his gaze caught Vallard's above the little man's head, and one of his eyelids closed in a slow, amused wink.

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FUTURIST TIMES

FUTURE FICTION'S UNIQUE DEPARTMENT

FUTURISTIC AND WEIRD FUTURE CONTENT

As reported in our last issue, Leigh Lorraine of Box 25 F. Route 2, San Antonio, Texas, is head of the Avian Poetry Service, which will bring a poetry time capsule next year. Among the items to be included will be a volume of weird and fantastic or futuristic poetry. The contents of this volume will be selected as follows: Each contributor to be asked what they consider their best single work of science-fiction, or fantastic, or weird poetry. There are no restrictions as to form, style, length, or specific theme. Poems will be judged on the standards of originality, understanding, emotional power, beauty of wording and perfection of technique.

Any poet, anywhere, published previously or not, known or unknown, may enter any one of the major sections. All entrants are required to submit a very brief biography, giving name, address, address, data as to whether they are married or not, date and place of birth, names of children, if any, approximate number of poems published, names of national organizations of verse or prose in which their poems appeared. If poet has been published before, list titles, poems, religious literary affiliations. Questions should be answered in order given, and entire information as brief as possible.

Each contributor may enter material for every contest, providing he enters it all at one time and not later than April 1, 1935. Dates contained in following material need not enter the contest in answer for mailing and his work to the various judges. He must place his full name, pen-name if any, and address in upper left hand corner, so that it can be cut off and replaced by a number as poems go anonymously to the judges. Only one poem for each contest: the science fiction and fantasy contest and the weird poetry contest are presently are lumped together into one and can be submitted and material must be typewritten.

Your editor has been chosen as head of the committee to judge the science-fiction poetry material, while the well-known fantasy fan, Donald A. Wollheim, will head the committee judging the weird poetry. The fantastic poetry will be sent to either your editor or Mr. Wollheim, all depending upon whether it falls more in the domain of the weird side.

Full information upon the entire program of the contests involving around the time capsule and the Avian Poetry Service can be obtained by writing Miss Lorraine at the address given above.

FANTASY FILM

Hollywood seems at last to have realized the possibilities of fantasy films and has, in the Maxmiser '31 season alone, produced more good pictures of this type than

are usually made in a year's time. Here are four of the best:

WHEN COMES MR. JORDAN—A Columbia Picture. Joe Pennington (Robert Montgomery), a prize-fighter, apparently dies in a plane crash and his soul is taken by the inexperienced and semi-conscious newspaper Tiff (Edward Everett Horton) to Mr. Jordan, the newspaper magnate (Lester Rains). Discovering through the records that the newspaper has made a mistake and that Pennington has fifty more years to live, Joe returns to earth to be replaced in his body—only to find that he has been contacted during the interval by his newspaper editor (Clarence Darrow). He sets up a racket for a new body and finally to his former one, so he and Mr. Jordan wear the earth looking over "last year's crop." Funny writing on a rich man, Bruce Pennington, who has just been mentioned by his wife and secretary, just as Pennington reaches his destination to live as Pennington, and even falls in love. Pennington is mentioned again! We won't go on any further—just see the rest for yourself; it's witty. Don't miss it.

DR. JENKINS AND MR. HYDE—MGM Picture. Based on the third story on the novel, screen writer's laconic treatment of again personally featured Spencer Tracy, Ingrid Bergman, and Loretta Young in the leading roles. A retelling of this plot is unnecessary, but mention can be made of Tracy's superb and unusual portrayal of both Jekyll and Hyde in the 47th hour. Eugene Pflaum's and the modern photography, featuring shots of the change from one personality to another. Miss Young (Bergman), actress of Dr. Jekyll and Miss Bergman (Tracy) London heroically furnish the necessary fantastic background, and the cast is well rounded out by E. Aubrey Smith, Ben Hunter, Gerald Craye, and Barrie Munday. Definitely a gem. (M. Roca. We've heard nothing more or less on this one. Adapted version signed?)

THE RELENTANT DRAGON—RKO Picture. Playmate Bob Reynolds stars with Disney's Roy-Thomas studio, showing the various stages of production and, as the result, making five animated shorts. Donald Duck cartoon, a Billy Dove cartoon, "Gasey, Jr.," "Baby Women" and the feature, "The Reluctant Dragon." A combination of black-and-white film, animation and cartoons, this movie (though not as good as the other full-length Disney) is an interesting insight into cartoon-making and the story alone warrants the price of admission. Recommended.

TOM, DICK, AND HARRY—RKO. Radio Pictures. Though only pseudo-fantasy, this picture features several fantastic shots worth viewing. Miss Rogers plays

the part of a telephone operator in the various predicaments of being engaged in three acts at once. Having to decide by morning which of the three she will marry, the fantasy scenes occur when she dreams of married life with each: Tom, the auto salesman (Gilbert Murphy). Dick, the garage mechanic (Clarence Muse) and Harry, a rich playboy (Alan Marshall). To reveal her choice would be to give the story away. Light comedy and good entertainment. —BILL STONE.

BOOK REVIEW

THE OTHER WORLDS — An Anthology. Wilfred Funk, New York. \$1.25. It's too bad that poets-writers and anthropologists can't get together any more. The resulting work proclaims Phil Strong, editor, to be the case of this volume, to be "the foremost authority on science-fiction and fantasy in the country" while our Mr. Strong ably improves on Mr. Strong is supposed to have claimed that all and weird tales are his hobby; then as we believe by the way he does it, abridges, with spare, and, we presume, a few words whip. For we have seen many a critic's attack upon art and fantasy by those who claimed to despise the very thing, but none as consistently appreciative and logical as found Strong's introductory remarks.

Not one item among the many stories considered "science" by the standards of readers and editors of science fiction appears in this anthology. As a matter of fact, most of the selections are weird stories of varying individuality. A few exceptions only prove the rule.

A year's subscription to any regularly appearing science-fiction magazine will bring you more worth for your money than this one collection.

FANTASY FICTION FIELD

Martin of science and weird fiction classics brings to our mind the subject of old books of science-fiction and weird magazines, which are rather hard to get these days, in many cases. There are a number of science fiction fans who do a bit of part-time dealing in back issues, and Foremost among them is Julian Finger of 132 David Road, Brooklyn, New York. A card to Mr. Finger will secure for you his current price list, which appears now and then in FANTASY FICTION FIELD ILLUSTRATED NEWS WEEKLY.

This, in addition to carrying deep news of magazines, books, events, and whatnot, obtainable through Mr. Finger's service, is the only science fiction newsweekly now running. Your editor is accurate on this publication, but since it isn't all news, we can praise it without breaking any of the fragile spheres of publishing.

QUARRY

by MALLORY KENT

He had the sensation of being hunted!

HE AWOKE with the half-formed consciousness that a battle had been fought and lost. Very dim and indistinct were these first waking impressions, but they filtered through the basking warmth of the August sun so that he lay shivering as he wrapped the flimsy summer sheets tightly about him. For a long time he lay there, eyes tightly closed, willing desperately for a return to sleep.

No respite here. The dread was a tighter garment than any he could don, and the mindless force of it beat against him until he leaped from the bed in an ecstasy of fright. For an instant he stood there naked, his lean body quivering as his eyes darted from one corner of the room to another, then, momentarily exhausted, he fell back upon the pillow. Mechanically he reached for a cigarette, lit it, and breathed the morning air while reason raced madly to thrust its finger into the breached dikes.

What was this thing he feared?

He discarded the possibility of madness after a brief inventory. Insanity, he assumed, not considering physical defects and disease (and he was free of these, he knew) was a method of escape. And what motive could he have for wanting to escape?

Perhaps it would be best to consider them in order. First of all, there was the question of economic security: well, he was as safe as most people, more so than some, perhaps. So long as he could continue to turn out a not-too-high minimum of tunes and lyrics that suited the popular fancy, his income was assured. He would never become wealthy, barring freaks of luck the consideration of which never bothered him

anyway. As for the war—there was little he could do about it outside of taking the limited constitutional action open to him in the best manner he knew; he'd voted, convened, and discussed all in the way which seemed best for his own interests and those of his friends—if things got worse despite all that, sufficient unto the day . . .

Social position? He had his own circle of friends and acquaintances, got along well with some and not so well with others. He didn't feel particularly frustrated in that line. Women? No kick there; some liked him; some didn't. So what? He weighed his love life in the balance and found it wanting little.

Was there any responsibility he was trying to dodge? None. There was at least one girl he knew who wouldn't be not having any thanks if he proposed—perhaps more than one. Debts? Nothing staggering. Sensitive spots? Well, he didn't exactly relish being called Oscar—Richard O. Manton was much nearer to his taste, or Dick to friends. But someone had thought that "Oscar Manton" was a much better trade name, so it stuck.

No, there was no reason why he should be going mad.

Was it the hangover of some nightmare? Slowly he dressed, as the first panic receded, leaving only a highwater mark of dread in his being. But even as the mellowing sun caressed him, he knew that the tide would return; it had not entirely forsaken him.

The dread was now a thing withdrawn, lurking subtly behind the facade of amore sky and the outlines of familiar things.

How thin, how thin was the barrier? Would he have time to learn the nature of it before it came again?

How much time had he? A ripple of the terror splashed over him as the familiar words "it is later than you think" formed in his brain. He made his way to the lavatory wondering if he were the last man alive on a suddenly stricken earth, finding ominous tokens in a lack of noise from the street. Just now, he didn't quite dare look out the window. Later . . . later . . .

Suddenly he laughed, then paused to listen to his laughter. A rather weak laugh, a tired little laugh, but no signs of crackup yet. He darted back to the radio, turned it on. An instant as the tubes lit up, then the familiar voice of an announcer introducing a soap opera. Carelessly he flicked it off, picked up the fallen towel and soap and completed his interrupted rendezvous with cleanliness.

THE incoming wave of dread drenched him for a second time just before he was leaving the apartment for a downtown appointment. It was to be a semi-holiday, lazing with prolonged lunch and small talk with his publisher, the delivery of completed ms., and winding up with Joan and a mince. Complete agenda for evening to be worked out later. The dread lanced through his being like a bolt of lightning, held him irresistibly.

He stood there, brain freezing, his heart battering its way to the open air, or so it seemed. For the veriest fragment of an instant, he thought he saw *through* the world, saw into the dread spaces which were not entirely empty. Frantically he seized the door, clung to it; he would not be drawn into that abyss . . . Then the vision passed and the world resumed its solidity.

But the dread remained. And the fear of being caught here in this semi-dark apartment, caught like a rat burrowing beneath the ground, made him plunge for the stairs, race madly down the hall out onto the welcome street. He sat upon

the stones steps, panting, his eyes wandering gratefully about him, resting upon the housewives, the superintendents, and the drivers of cars rolling by.

He sat, staring ahead of him trying to think. What was after him—hunting him? Abruptly he shook his head. He mustn't stare into nothingness like that, because if he did, he would begin to see *through* again. The hands on a nearby bar-clock caught his eyes. He arose, dusted himself off, and started down the subway.

But when he entered the little terminal, the dread arose. No, no, he didn't want to be found away from the sun and the sky and the clean air. Yes, he knew that the air here wasn't exactly clean, but it was sweet to him, the air of the city, and he wanted to breathe it, savor it, bask himself in it so long as he could.

He would try to escape above ground.

Escape? His heart sank within him at the thought. Could he elude *them*? Or was there merely one; could he escape *it*? It was seeking him, groping for him with indescribable fingers.

And the dread within him waxed and waned as it approached or veered away.

HE stepped away from the subway entrance, walked a few blocks to a bus stop, saw with relief that the vehicle approaching was well filled. He eased himself into a seat by the window, found comfort in the passing Broadway pedestrians. Doggedly he kept thinking to himself: if I can only stay hidden until noon, if I can hold it off until high noon; he clamped a subconscious censor upon himself and refused to consider what might happen after twelve o'clock.

His breathing took on a slow, steady rhythm; he leaned back against the leather seat, intent upon conversation between a couple of girls behind him, grateful for the diversion. The nervous tension had tired him; things began to blur before his eyes and a weariness was yammering away

at him. The sights and sounds about him began to taper off, taper off . . .

No! He sat bolt upright. He mustn't go to sleep. It was in sleep that it had spotted him, marked him for its quarry. Perhaps it would tire could he but hold out longer, tire and seek easier prey. Almost anyone in this bus would do—or would they? Perhaps only humans with a higher than normal sensitivity could be spotted. After all, he thought, this is such a tiny planet, and even the greatest of us so small. He shook his head again, pulled the cord for stopping the vehicle.

If there was ever a time when drugs were excusable, this was it; he needed something to keep him starkly awake and aware. He entered the store, realizing that his walk was almost a shamble, leaned against the counter and told of his needs.

The druggist gave him something guaranteed to keep him awake for twelve hours at least. He read the instructions carefully, then went over to the counter and took a stiff dose of the stuff.

The dread had pretty well receded now. He strode down Broadway toward the corner where Bently would meet him, wondering how many of the people passing him were real. Was he real? Yes, that much he had to take for granted.

But that man passing by, stiff, sedate. Was he real? Was he actually there in full dimensions, or was he but a projection, a temporary replacement pending his removal, his final removal from the scene of Terrestrial affairs by "death?" The drug had stimulated his thoughts enormously; he exulted in the clarity of them, the facility with which he seemed to see things for the first time.

Suppose there were hunters, beings from some other plane of existence who sought specimens of humanity for their trophy collections, just as men seek game or fish to mount. It wouldn't be as easy game, he thought. And they wouldn't want to spoil it by letting the hunted become aware of

what was going on, or permitting them to know just how many were taken, constantly.

Wouldn't the simplest thing for these hunters to do be to replace the victim with a three-dimensional projection, which would meet some sort of fatal accident shortly after the actual person's removal? He half-smiled at these thoughts because, for all the mad logic of them, even his limited intelligence (limited in comparison with that of the hunters) could pick flaws in such a procedure.

What projection, no matter how cunning, could stand up under the incessant scrutiny of fellow humans, or, most of the all, scrutiny by trained physicians attending death. No, it was all nice fantasy, but it wouldn't stand up in the cold light of logic.

WELL, there was nothing to be afraid of now. He stopped and leaned against a store front, staring fixedly at the building opposite him. He wanted to discover if he could see *through* the way he'd done this morning.

Smiling, his eyes bored into the edifice, but it trembled not nor wavered. He thought he detected a flicker, after awhile, but that was clearly an indication that his eyes were getting tired. He looked at his watch. Hell, there wasn't time to walk; he'd be late. Very well, then, the IRT was only a block away.

Striding along at an easy jaunt, he passed under the noses of zipping taxis and merited the frown of one of the city's finest. Grinning he slipped his oickle into the slot, and swung himself through the turnstile with a gaiety he hadn't felt in weeks. His eyes roved over the headlines on the station newsstand and he invested in chewing gum.

Once within the car, his attention was captured and held prisoner by a coppery haired wench who didn't seem to mind the summer breezes playing with her skirt. She went so far as to return his interest with a smile, then deserted him at the next station.

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Future Fiction

When he emerged from the subway, a clock was beginning to strike twelve. He stood still waiting for it to finish.

Without knowing exactly why, he glanced up at the eastern sky. His jaws ceased mauling the gum. "What an illusion," he murmured to himself, noting with the corner of his eyes that the people around him did not see.

Of course; how could they see an illusion which was his alone?

But it looked real, all right. It really did look as if the sky up in that section, were being torn slowly, as if something were poking through the tear.

What that something was, he could not be sure. He wished that illusions could be more explicit. All he could be sure of was that he seemed to see *something* reaching down, down out of the eastern sky, down between the towering Manhattan structures, down into the street, reaching out for him.

There was no dread now. He closed his eyes and tried to imagine what it would feel like when it caught him.

Bentley looked worried as the familiar form of Manton hove into view. "You're late, Oscar," he chided.

The other looked somewhat confused. "Am I? Awfully sorry—guess I miscalculated . . ."

Bentley nodded. "Don't be so apologetic, old thing. Have you the stuff with you?" "Stuff? Oh—oh yes, of course."

The publisher peered more closely at his companion. "You're out yourself today, Oscar. Have a bad night, eh? Well, I didn't sleep any too well, either; damned heat! Better have a drink with me before we talk, eh?"

He took the other's arm and started for a nearby bar.





SALVAGE JOB

by LESLIE A. CROUTCH

Beetle was the best undersea worker on Venus. But Beetle loved the bottle. Not wisely and much too well. Hogan thought he had the problem nicely solved until the time came when Beetle would go down into those boiling waters sober and come up stewed to the gills. A little tale to tickle your funnybone.

"NOW REMEMBER, you little squirt, you may think you're good, and you are, but, by God, you pull any of your shenanigans on this job, and, so help me Hannah, I'll bust you so flat they'll think a steam-roller ran over you!" Hogan, the salvage boss, spat forcibly on the dirty deck, and glared at the smaller man, as if he could, by main force, drive his threat home.

The other grinned, and cocked a pop-eye at him. He wiggled his ears derisively, chuckled deep down in his scrawny throat. That always got the other—wiggling his ears that way.

"And you quit wigglin' your ears, you little imp of satan!" roared Hogan, expelling the bedraggled weed with a sound like a cork popping out of a bottle of kick. "You tend to your work this trip, and get them firestones up without any funny business."

The crew chuckled. They enjoyed these perpetual tiffs between Hogan and his diminutive diver.

Perchival Selwyn Brewster, London born, motioned for the men to place the helmet. Lushurious he looked, in the bulky suit necessary for diving in the warm Venusian

seas. Seas that would almost boil a man red as a lobster but for the protection of the special Bergen suit.

Over the side, standing on the little metal platform, they swung him, and he started on his long trip to the sunken wreck below. Hogan leaned over the rail, watched the descent with a practiced eye.

The clump of a heavy foot behind him drew him from his reverie. Turning, he spied his first mate, who halted, made a perfunctory salute, and handed him a suspicious-looking black bottle. Hogan snatched it with a growl.

"Why the little rum-guzzler!" he growled.

Hogan sniffed at the bottle. "Hmmm, the little mutt's got taste, anyway! Good kick, this. Costs like the devil!"

He tilted the bottle, and let a delicious drop dribble down his throat. The mate watched him with a slight grin, and two of the crew nudged and winked. Hogan lowered the bottle, and roared.

"Well, what are you all starin' at? Get to work!"

He hustled the bottle far out into the

sparkling sunlight, to fall in the heaving depths of the hot sea.

"Just wait till I get my hands on that little rum-bound," he threatened, striving to keep from noticing the smirks of his men.

"Listen, Riley," he said, turning to his mate. "You keep a watch on him. We'll keep that little runt sober if it kills him—at least, until the fire-stones are all hauled up, then he can drown himself in the junk."

Riley grinned, draped himself over the rail, to stare pensively down into the murky depths.

A diver can stay down only half an hour at very shallow depths in those treacherous waters. By then his suit feels hot enough to fry an egg on, and the inside isn't much cooler. Many men pass out under such working conditions. That is why Brewster, or Beetle, as he is called, because of his absurd little round paunch, spindly limbs, and beady eyes that make you think of some little black bug, is a regular jewel in uncouth form. He can stay down, and be the most active of any man on Venus, where strong men are the order of the day rather than the exception.

The half hour was up, and they were hauling Beetle up with a will.

THE water broke, and the rounded expanse of Beetle's helmet came into view. Something about the way the diminutive diver held onto the stays caused the boss of the salvage crew to order haste.

"Looks like he's caved in this time," he exclaimed, as Beetle staggered off the platform, and sat down heavily.

With great haste, they unbolted his helmet, and lifted the unwieldy thing off.

"Are you all right, man?" demanded Hogan, anxiously. If anything happened to Beetle they were sunk, figuratively and literally. He was the best man on Venus, by the time another had come out from earth, it would be well nigh impossible to avenge the treasure below. The powerful convection currents of the mighty oceans would have broken up the bulk.

Beetle opened his eyes, stared at the others. He smacked, wiggled both ears, and closed his eyes again.

Hogan shook him.

"Aish shright!" Beetle murmured, in a mushy tone. "Fetlish goodsh. Ver' goodsh!"

"If I didn't know he couldn't be right,

I'd swear he was!" Riley muttered, paradoxically.

Hogan granted. "Probably too much oxygen. They get that way sometimes."

Riley snorted. "You know damned well it's not too much oxygen, Hogan. You're just trying to side-step the issue."

Beetle stepped from his diving suit. He staggered, tried to do a ludicrous step-dance, which ended up with him in a pretzel-tangle on the deck. From there he surveyed his feet with great intensity, then tried to get up. He failed miserably; so he just lay back, and broke into a ribald song.

Hogan leaned down, hooking his fingers into the other's collar, jerked him to his feet. He shoved his not too insignificant nose into the other's face, and sniffed deeply.

"By all the little imps, he is drunk, Riley! Smell his breath."

Riley did, and voiced the verdict.

"But, how could he, sir?" He wasn't drunk when he went down. He couldn't get a drink down there. So how can he?"

"I dunno. But he is, or else we're tight! Here—" to one of the men. "Put him in bed. Swear this oath to him: if ya gotta kill the little gutter snipe!"

They searched Beetle's suit for a hidden pocket holding a hidden flask of the forbidden. But no luck. They searched him when he went down the next time. Still no luck. But when he came up the second time, he was drunker than he was the first! Hogan swore, the crew heard a few choice epithets they'd never even suspected existed, let alone heard.

Down Beetle went, sober. He'd work like a beaver the first fifteen minutes, and the firestones came up by the bucketful. Then Beetle would be very quiet. Up on the salvage ship they would wait, and wonder. Hogan would roar, and spit bechewed cigars about until the crew complained about the filthy condition of the deck. Then, up would come Beetle. Scaggering, singing, reeking of Venusian kick, a nickname given a vile mixture derived by squeezing the stem of the giant Venusian carnivorous lily, and then allowing the collected sap to ferment.

"I'm fed up," roared Hogan one day when the job was about finished. "I'm going down this time instead of that little bottle-sucker. I'm goin' to find out what happens down there or—er—" As he didn't know what he could do, he shut up, rather

Software Job

than incriminate himself by making threats he couldn't keep.

HOGAN took the first trip down that day. They had to dig up a larger suit from the hold, as Beetle's was many sizes too small for his huge frame. He sent up his share of the uncut stones mined on the Venusian blue mountains. Then he hunted, and searched; and he swore. Finally, his half hour up, he sent up the signal for them to haul up the platform.

It was just as his helmet was breaking surface that it happened. One of the men let loose a yell, and pointed excitedly to the east. Riley whipped up his glasses to see what was breaking the surface of the sea. He stared a moment, then, his face paling above the thin black moustache that graced his upper lip, he whirled, and, barking forth orders, ran for the long-barreled automatic cannon that was carried as protection against the fierce denizens that haunted the

In their haste to haul Hogan up in the least possible time, they snarled the cables and the blocks jammed, leaving him standing in the sea up to his neck, helpless.

Riley sighted the gun and fired. There was no report, as these were the latest things sent out from earth on the last supply ship. Working by super-heated steam under immense pressure, they fired a slim, dart-like projectile that was about the only thing that seemed at all effective against the tremendously tough skin of the finny things that swam the deep.

Suddenly an ugly head reared above the water. Serpentine in appearance, heavily scaled for a short distance down the neck, it looked somewhat like the old-time serpents that allegedly had haunted the traffic lanes in earth's oceans. A long, forked tongue shot in and out, and—something no self-respecting snake ever had—several long, gleaming fangs that reflected the light.

Hagan, seeing the excited pointing and glances of the crew, had turned clumsily; now he, too, could see the approaching monster. Awkwardly, vainly, he tried to climb the cables to the ship's deck, but his weight was too great for effective movement above water.

Riley was firing steadily, but apparently without much effect, if any. Several of the men had rushed to the rail, rifles in hands, and were taking aim. Leaving three to at-

(Continued On Page 98)

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the bottle, sailing through the morning air, had struck the monster, whether by luck or remarkable aiming, squarely on the head. It burst. For a moment nothing happened, then the ulth reared, shook its head blindly, leaped high into the air and disappeared into the depths, to reappear a moment later swimming away in an erratic fashion, exactly as though attempting its escape from some unseen enemy.

They helped poor Beetle up before they did Hogan, for the latter was protected by the suit. The diminutive diver was a lobster red; the doctor hurried him off to the sick bay to treat him for extensive scalds. The man was literally half-cooked from end to end!

Hogan came into the radio shack the other night. He was grinnin' like the kitty that'd licked up the spilt cream, and ate the canary for lunch.

"I was down to see Beetle, Sparks," he said. "He told me a few things that will make the crew chuckle when they hear them."

I pricked up my ears. "Yes, sir?" I asked, respectfully.

"Yeah," He smiled, reminiscently. "He was telling me about the kick, and the ulth."

I pricked up my ears at that. I was wondering, as was everyone, about how Beetle had got drunk, and what was in the bottle he threw at the ulth.

"Yeah, Beetle says he found a case down there in the captain's cabin. Swears he smelled the stuff on the way down."

"I don't doubt it," I granted. "That guy could smell liquor for a hundred miles!"

"Yeah, that's why I believe him when he said he found it so easy. Well, it seems when the boat went down, there was a lot of air caught in the cabin. The pressure of the water kept it prisoned there. Beetle swears he'd open his helmet, and drink a bottle or two, sittin' on the table with his head in the air!"

I stared at him.

"He—what?"

Hogan grinned.

"Hard to believe, isn't it? And then the ulth—remember where those lilies grow?"

"Sure, in swamps—say—you don't mean those ulths hate kick that bad? They'll run from it like I would from a skunk?"

He nodded. "Well, son, I never saw you run from a skunk, but that's the general idea."



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SOMETHING FROM BEYOND

by PAUL DENNIS LAVOND

(Author of "A Prince of Peace," "Callisten Torch," etc.)

Out of space it came to prey upon the men who rode between worlds.

Foreword

WALLACE GREY was born in 2009, some thirty years after Harley Graeme made his first moon flight, in Norwich, and was schooled in Laurie Hall nearby, later attending Norwich University.

Although not nationally known, Norwich University has a fine, solid reputation for turning out acute, liberally-minded men, men who are neither too idealistic to adjust themselves to the harsh practicalities, nor yet too cut and dried to see beyond their noses. There are compulsory courses in subjects the mere mention of which would bring ridicule in other schools; they teach the occult and delve into what is known as Black Magic. Yet never do they permit their students thus to lose their grip on a world which denies and decides these things. The purpose of these courses is to instill into the student a love of truth and the unknown; they seek to make them like those sturdy scholars of a distant past who were willing to search through innumerable haystacks of falsehood for the needle of truth therein. Norwich men have always been the last to assert and cry "impossible" when the unknown occurs.

Shortly after graduating, Grey turned to anthropology for his vocation, but found the recognized authorities in the field to be

grey-headed dodderers with a distaste for unorthodox views. In a fit of despair, he joined the Space Patrol, then popularly thought to be a glorified suicide club, nothing more. After a few months, his state of mind improved; but instead of buying his way out, as easily he could have done, he set about forging ahead in the Patrol. He was the first commissioned officer to rise from the ranks and there is no doubt but that he would have gone far, made a name both for himself and for the Patrol had not his career abruptly been terminated.

Grey was found dead, along with two other members of the crew, in the Patrol ship he commanded. The circumstances of his death were unusual inasmuch as the bodies of the three men were frozen, although the ship was quite warm. These bodies could not be thawed, yet gained heat rapidly upon arrival at Earth until the temperature was almost that of living men. An investigation brought no light upon the incident; there remains only Wallace Grey's journal, extracts from which we give below.

From the Journal of Wallace Grey

"WHATEVER our scientists may say about the lifelessness of space, I cannot help believing that the void is indeed a harbor of life, even though it may not resemble the life we know. Per-

Something From Beyond

haps such life is so alien that the very word itself cannot be applied, so different that by no stretch could the most plastic imagination conceive it. Yet, we *have* this word, and it signifies anything which possesses consciousness of being; to that we add growth, power of ingestion, reproduction, motion, and thought. Perhaps there are vortices of pure thought here in space.... But there is something out here which we cannot see, hear, taste, touch or smell. Yet we do *sense* its presence; we know it is here.

"It....I cannot call the thing by any term more definite than 'it'....is watching us, or, should I say, it is aware of us; it may not possess what we know as sight. It is aware of us and has been following us for the last few days....perhaps longer; we cannot tell how long it may have been hovering over us before we became aware of it. Perhaps a considerable length of time in its presence is necessary before any suggestion of its being can permeate us; Awareness has come, but not through the customary channels of perception. I wonder, though: is it conscious of us?....Are trees conscious of the birds and animals that nest therein, of the little boys that climb them, of the men who come at last to hew them down?....No, trees are still strange to men, even though men have known and dealt with trees as far back as our racial memories go. Even yet we do not *know* whether or not the tree has a consciousness of being, so awareness of other life-forms about it....Imagination, psychological delusion, wishes that father thought....we cannot be certain about anything; our greatest positivism can only be relative. Yet, I say that I can feel that *this* is a living, malevolent entity; but how do I know it is not my own emotions telling me this, my emotions which color my every act no matter how diligently I try to whitewash? It is only natural that we distrust what we do not know; all that we know is full of danger, pain, disaster, and death for us. We cannot trust ourselves: how, then, can the unknown bring other than apprehension to us?....

"I think that I am aware of this....phenomenon....more than Orloff or Jac; yet Orloff has been acting queerly for a number of days. He always was more than a little absent-minded; now he seems completely dazed. Ever since he and Jac repaired the blast-tube, Orloff has been....

(Continued On Page 102)

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Future Fiction

(Continued From Page 101)

different. He speaks very little, and, when he does, it is almost with an effort, as if he did not know the language he was trying to use. His voice, too, seems to have changed and the inflection is weird. I can see that Jac is puzzled; he asked me a few hours ago whether I thought Orloff might be developing some form of space-dementia. That is possible. I have tried to speak to Orloff several times, to see if he is in pain or feeling sick; he evades me and does not seem to understand what I am saying. There is, however, no fault to be found with his work; he does, true, perform his duties a trifle more slowly than before, but his efficiency has increased noticeably. He was always somewhat timid at the controls, fearful lest he make a blunder which would be disastrous to us all; now he handles them with confidence, does so well that I need not oversee him. He spends nearly all of his spare time staring out the portholes into space, although he does not appear to be watching anything. His eyes, I have noticed, are somewhat glazed as he stands there and, after he has finally turned away, his movements, for a few seconds, are incongruously stiff and awkward. Can there be any relationship between Orloff's eccentricity and it? I must look into the *Song of Yste* again.... How out of place that ancient book seems aboard this ship, on the dark side of Luna, some quarter-million miles from Earth. Did those olden prophets into the unknown, I wonder, ever dream of the day when men would leave the Earth physically?... Yet, there is a vast amount of truth in this volume! I am told, by friends, that it was once declared pernicious, blasphemous, accursed, and to be destroyed on sight. A few copies were handed secretly from generation to generation lest they be discovered and burnt. (I wonder sometimes just how grandfather obtained it. Did he find it in a tomb, as he claimed, or was it obtained by other methods?)

Later:

“ORLOFF has been given a full physical examination. I can find nothing wrong with him.”

Later:

“Something has happened to my copy of the *Song of Yste*. I am positive that it was packed among other, more orthodox, vol-

Something From Beyond

umes when we left Earth; yet it is not there now. I am sure Jac would not be rummaging around my things; even if he were, what possible interest could a book like that hold for him. And Orloff....but how could the lock on my chest be tampered with without traces being left? Moreover, of what value could a copy of this book be to other than myself? It is in cipher, a most ingenious cipher. It took grandfather ten years to work it out, and another five to prepare the volume I now possess. But the mere possession of the key would be of little value, for even then one uninitiate could not read it. Each page holds a different variation of the cipher, the clue to which lies in the little sketch heading the page. Grandfather told me before he died. I mention this to point out the difficulty of reading a volume like my special copy of the *Song of Ysle* and to draw attention to the high improbability that two people on the same ship, two members of the Space Patrol, further, would have the required abilities. Yet, Orloff's condition leaves him open to grave suspicion."

Later:

"Orloff has taken a change for the worse. He is unconscious now: Jac found him lying on the floor when he went below to see why Orloff did not respond to his signals. For a moment, he appeared to revive; his eyes opened....yet I would swear that it was not Orloff who looked at us. He is lying on the couch in the next room; Jac and I are sharing his duties. I took advantage of the emergency to search Orloff's room. Of course, it is within my authority to demand search at any time but I had been reluctant to use my power in this case as I was not sure that perhaps the blame was not mine. But the search proved my initial suspicions to be correct: it was in his room, and he had been reading it. I found figures on a sheet of paper in his desk which prove conclusively that he knew the cipher, was computing the variations for specific pages. When I am free, I shall determine just what he was reading; perhaps it will shed some light upon this gruesome state of affairs."

Later:

"We are functioning under automatic controls, such as they are. . . I have been reading that portion of the *Song of Ysle*

(Continued On Page 104)

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Future Fiction

(Continued From Page 103)

which seemed to be of so much interest to Orloff: it is damnable. Now I know what it is which has come out of space to dog our heels; I know why we feel so cold and the reason for Orloff's curious condition... We are completely helpless.... If I seem a bit reluctant to state what I know, it is because of the stark, objective closeness of the thing which stuns me. It is one thing to delve into the unknown and learn of hideous and alien secrets with which the cosmos is filled. That is one thing, I say, and it is a thing more than many minds can endure. But to face the actuality of these things is another matter. To those not afraid of thought, the *Song of Ysis* is not so utterly horrible... bizarre, grotesque... words, words, words, but what can they mean, what can they mean when the reader has nothing in his own experience to approximate them?... Imagination always paints a fascinating picture, albeit how gruesome, attaching glamor to the unknown and alien... but the reality.... *Is, Nyaggghoah! Shuk-Niggurath! Nyarlathotep! Nyarlathotep!... Nyaggghoah, dissolver of space... K'halkrat!*...

"Orloff's condition is unchanged. He is still in a coma, apparently. But there are no wounds, no concussion, fractures or symptoms of shock. Jac does not suspect his true condition.... but I know.... I know!"

"This is my last entry. It has come.... out of space.... for us. A short time ago I heard the call.... within. Weird piping sound ending in a piercing shriek. We... felt it rather than heard it. Jac did not know what it was.... I tried to explain something natural....

"Orloff has arisen.... at the call. He stood in the doorway for a moment, looking at us, and, in his eyes a blackness, a vast shape of inconceivable power, malevolent power, that glared out at us. We are rooted to our seats.... though I cannot see what manner of resistance we could make were we free. I suppose it prefers us alive.... though could I reach the wall, none of us would go to it alive.

"We both feel very cold, although the instruments show that the temperature has not dropped a single degree. The cold comes from.... within. Orloff is moving slowly toward the space-lock; I sit here frozen to my seat, writing furiously.... Must

Something From Beyond

try to put down what I read in that accursed book last night. . . .

"Let not the hearts of men dwell too pleasantly upon escape from this earth to worlds of strangeness and glamor beyond the veil of night for without lies horror and madness and that which no human tongue or pen can describe. Vaster by far than the might and malevolence of those demons that plague and beset the earth is that which comes out of space to feast upon the souls of men; yet, indeed, it is but a lesser manifestation of the evil which dwells beyond the stars. This out of space may be known by the coldness it brings, a coldness which no fire can abate, and by its unholy piping by which it summons its victims to sacrifice. For of old it is known to send itself into the living bodies of certain creatures so that they appear bewitched and know not themselves, shunning the day and the radiance of the sun which is hateful to it. Many and manifold are the prodigies it performs, for it may enter a city and blast all within into frozen corpses, yet, when these are discovered, there will have been no sign either of cold or of its point of entrance. Many and manifold are the prodigies it performs for its own amusement and contempt for men. And the crowning foulness of all. . . ."

"I may write no more. The space lock is opening. . . . Orloff. . . ."

ENTRY in the log of the Space-Liner *Majestic*, Earth-Mars voyage EM 206; (From File .0078, Derelicts, Report of, for the year 2027, Record Rooms, Interplanetary Transit Building, N.York, Terra.)

"December 9, 2027. Discovered derelict space-patrol cruiser. #SP-070 R3, reported missing August 24, 2027, drifting in and parallel to Band 3. Found bodies of three men in cabin. Two in their official places; a third lying on the floor in such a position as to assume he had been placed there after death. Although ship was entirely warm and instruments showed no variation in room temperature, the corpses were frozen. Ship's log, found in cabin, was dated August 3, 2027, 00 entries after that date being found. Journal of Commanding Officer, Wallace Grey, Lieutenant, Space-Patrol, hereby forwarded without comment. Lt. Grey was found, pen in hand, in the act of making entries in aforementioned journal."

THE END



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SPACE EPISODE

by LESLIE PERRI

So little time was left; quickly their ship was plunging toward the looming Earth. And still the two men sat entranced.

SHE STARED at her two companions for a moment and then a sickening revulsion replaced fear, the fear that held each of the three in a terrible grip of inertia. Her slim hands bit hard into the back of one of the metal seats. The tiny rocket ship was plummeting to destruction, careening dizzily through space. Here, in the atmosphereless void, their motion was negligible to them, but instruments told a grim story; unless they could blast the forward rockets very soon they would be caught in the Earth's titanic grip and drawn with intensifying acceleration to its surface. They would come screaming down like some colossal shell and the planet's surface would become a molten sore where they struck. And now, while precious seconds fled, the three of them stood transfixed, immobile.

What had happened? A simple thing, an unimportant thing in space. They had encountered a meteor swarm, one utterly infinitesimal in the sight of the looming worlds about them. But it had left one of its members jammed in their forward rocket nozzles, the tubes which determined whether they would land safely or crash in a blaze of incandescence. They had turned off their operating power rather than wreck the ship completely; with no escape for the rocket-blasts, their motors would be smashed to pieces.

The first they knew of disaster, striking unheralded from space, was the ear-shattering impact of the meteor. No sound; just concussion that was worse than any deafening crash. Then the power generator dial shot to the danger line; the ship began to plunge, teleplate showing the universe seemingly turning fast somersaults as their ship careened end over end. The truth was evident at once; that impediment must be removed from the forward tubes. One of them must volunteer to clear away the obstruction, or all were doomed.

A time for heroics, this, but none of them felt like heroes. Erik and Michael stood side by side, a sort of bewildered terror on their faces—a "this can't happen to us" look. Neither had moved or spoken a word since the first investigation. Erik, upon discovering that the outer door was gone, had flung his space suit to the floor with an impotent curse. For that shorn-off door meant that whoever left the ship now could never return; it was a one-way passage. The taller of the two men played with the instruments, spinning them this way and that, then stood waiting. Waiting for heaven alone knew what miracle to happen.

Lida found her confidence in them, that fine confidence she had known up to now, dissolving away, leaving her with an empty feeling which was greater than any fear

Space Episode

could have been. She could not square them, as they were now, with the men she had known before—through innumerable Terrestrial dangers on land, sea, and in the clouds. The three had had a planet-wide reputation as reckless and danger-despising. And now . . .

"Erik!" she cried suddenly. "Damn it, this is not a tea party! We have to do something now. Toss coins or draw lots. Either one of us goes out there now, or we all crack up."

Michael glanced at her dully as she spoke, his tongue moving over dry lips. Erik closed his eyes, brushing his hair with a limp gesture. Lida's hands tightened on the back seat; what was wrong with them? She bent forward slightly, her heart beating like a dull and distant drum. The dials on the control board frightened her; she whispered now. "You see what little time we have left? Nothing's going to happen unless we make it happen. We're falling, falling fast."

Michael slumped in his seat, dropped his head to his knees groaning. Erik looked at her vaguely for a long second, then turned his eyes to the teleplate. Cold perspiration stood on his forehead. This was the dashing Erik Vane, onetime secret dream hero, close companion since that day, years back, when he and Mike had fished her out of the wreck of her plane somewhere in the Pacific. Suddenly, it all seemed amusing to her; the question of sacrifice lay between Michael and Erik—this was strictly men's work. But they were finding life a sweet thing—a sudden burst of laughter overcame her. There was such an amusing impotency to Erik's strength and the dash of his clothes; the knuckles stood white on his hands, cold damp fear glittering on his forehead.

AND what of Michael, the gallant? He slumped in his seat, holding his face in shaking hands. Could this be the same man who had saved them all by scaling what was virtually a sheer cliff by night and obtaining help from neighboring aborigines? All the dangers they had faced together and overcome together now crowded in her memory, one piling upon another. Scores of times one of them had unhesitatingly faced unpleasant death for the sake of all; she had been no exception.

And there was another picture that made her laugh, too, but it wasn't a gay laugh.

(Continued On Page 105)

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over. Her fingers were swift and sure, adjusting the steel clamps.

Michael was still in a semi-coma. Erik was watching her reflection. He knew what she was doing. His shoulders were rigid now, but he made no move to stop her. And now memory played the final ironic trick. She recalled Michael saying, with his arm around her shoulders, "When we get to Mars, you'll be the glamor girl of the planet. It'll be wonderful, Lida—just the two of us." His eyes had hinted at things he did not put into words and even though she knew that nothing of the kind would happen so long as there were three of them, she had been glad for him then.

She jerked up the front zipper, trying to close her memories with the same motion. There weren't many seconds to spare now. She fastened the tools to her belt, checked them and with them her signal sending button with the receiving set on the instrument board. Then, with shaking hands she could not help, she picked up the helmet.

Michael looked up suddenly, incredulity filling his eyes. Erik wheeled around from the teleplate.

"Lida!" he said, his voice hoarse.

Gone was the bitterness and contempt now. "So long, Erik," she replied softly. "I'll do the best I can. Watch for the signal on the control board. I'll send it through when the rocket nozzles are clear—that is, if I'm not blown from the ship."

He swayed for an instant, lurching over to where she stood. "I can't let you do it. Give me the suit, Lida. I'll go." She looked at him, cynical and proud, her eyes glittering like steel and her small chin thrust forward determinedly. These words he had said—what were they but words he flung from him, reaching out to pull together the tatters of his self-respect? She pited him.

"There's no time for that now," she replied crisply. "Good luck."

On a sudden impulse she darted over to Michael and struck him sharply across the face. He looked up suddenly, his eyes widening in amazement. "Aren't you going to say—goodbye?"

"Lida," he muttered, "don't go. Don't leave us now; it won't do any good, Lida. Take off the suit and we'll all go together."

SHE shook her head defiantly. "Not! There's still time. Goodbye, Michael." She fastened on the helmet, her hands cold.

(Continued On Page 111)

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(Continued From Page 109)

Space lay around her and, as she worked, she felt a nameless dread seep into her being. The face of the planet was directly *above*. Desperately, she tried not to look at it. Despite her efforts, she could not help but glance upward at its looming immensity, cringing as she did so. It was so horribly large—falling on her. It seemed to be drawing her *up*, the way an electromagnet catches a piece of scrap-iron. And around her was space, space filled with pinpoints, billiard balls, and footballs of light. She knew she must not stop to look at them. They would charm away her senses and burn out her eyes. She knew this without ever having been told. There was a horror in space, not anything alive, but a dread that chilled and stole away one's life.

(Continued On Page 112)

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Future Fiction

(Continued From Page 111)

Slowly, carefully, she made her way up the side of the ship, using her toes, when necessary, to clear obstructions. Finally she reached the nose, rested against the boldly painted nameplate *Ares*. A sense of the horrible irony of the situation struck her. If they had immediately fired the forward rockets when the meteor struck, the tremendous blast furnace would have melted the obstruction, for, she saw now, it was very slight. Given a chance to harden, however, it was a different story; to blast now, with it there, would blow out the tubes.

She understood, now, why men who had faced all manner of Terrestrial dangers had become weak and helpless here. They had been fools, all of them, to come on this flight without conditioning—space was no place for humans unless they had been conditioned to it gradually. And they had thought themselves so clever in the way they had evaded the requirements for a license.

She pressed the signal button at her waist as the last trace of the obstruction was eaten away. An instant later, there was an answering flash in the small metal tube next to it; they had been watching the control button. A single tear ran down her nose as she thought: "I hope they go to hell, damn them."

Pulling her hand from the magnetic clamp, she straightened up stiffly, and, with a hard, quick push jumped clear of the ship. It swerved suddenly and with dizzying violence knocked her clear of their rockets. She had not considered the imminence of them before. The thought of being charred....

Earth loomed above her. She had not the acceleration of the ship. Soon it would leave her behind. She would float out here in an orbit of her own, a second moon. Perhaps a meteor would strike her some day; perhaps in the future space-voyagers would find her and bring her home. Soon, within an hour at the most, there would be no more air. But why wait hours? With a sudden movement, she threw open the helmet of her suit.

The ship was gone now. Michael and Erik were safe. And something tenuous had clamped itself over her nose and mouth so that she could no longer breathe. For an instant she struggled, lungs bursting, as in the throes of a nightmare. Her thoughts cried out, "Michael! Michael!"

The darkness gathered her in.

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